

#### AIRBORNE EXPRESS

April 24, 1997

Ms. Mary Anne Rosa
Project Manager
Emergency and Remedial Response Division - Region II
U.S. Environmental Protection Agency
290 Broadway, 19th Floor
New York, New York 10007-1866

Re: Reply to Request for Information on Hazardous Substances at the Kodalux Processing Laboratory, Fair Lawn, New Jersey

Dear Ms. Rosa:

This is in response to your February 26, 1997 letter requesting information regarding the Kodalux Processing Laboratory (facility), located in Fair Lawn, New Jersey. Your request was mailed to the facility at Fair Lawn and thereafter forwarded to Eastman Kodak Company ("Kodak") corporate offices in Rochester, New York for my attention and handling. The status of the facility with respect to Kodak ownership is discussed in the accompanying response. The time to respond to this request was extended to April 26, 1997 by Ms. Amelia Wagner, Esq., of your staff.

As stated in Kodak's January 29, 1991 supplemental response to your office's previous request for information regarding handling of hazardous substances at the facility, four petroleum underground storage tanks and a dry well for the fire suppression system have been removed. These activities have been reported to New Jersey Department of Environmental Protection (NJDEP), case nos. 90 06 15 1528 and 90 05 22 1638.

Upon developing the attached response to your request for information, Kodak has concluded that the following reports inappropriately refer to the usage of trichloroethene (TCE) at the Kodalux Processing Laboratory:

298099



September 14, 1979. Memo Assistant Director Bellis, New Jersey Department of Environmental Protection from Mr. Lynch. June 1983. Draft NUS Remedial Action Master Plan, Fair Lawn Well Field, Fair Lawn, New Jersey: A. Olszewski and E. Escher. December 1996. Revised Final Interim Report For The Fair Lawn Well Field Site, Bergen County, New Jersey: ICF Kaiser.

Although trichloroethene has been detected at the facility, it has not been utilized in facility operations. In addition, chloroform, which has also not been used at the facility, was detected in groundwater samples from the facility. The presence of chloroform and trichloroethene indicate that the facility has been impacted by off-site sources.

Preliminary evaluation of groundwater monitoring results for the facility indicate that although releases have occurred, the source of the releases have been removed and regional up-gradient sources have contributed to contamination of the facility. Eastman Kodak Company (Kodak) is continuing to evaluate the facility under a Memorandum of Agreement with NJDEP.

Should USEPA become the lead agency with respect the corrective action activities in the area, Kodak would appreciate an opportunity to meet with USEPA and NJDEP representatives to ensure that continued progress at the facility will meet the goals of both agencies.

If additional information is required please contact me at (716)-724-4899.

Very truly yours,

Torger N. Dahl

TND Enclosures (CERLCA02)

cc: Amelia Wagner (w/encl.)
Office of Regional Counsel
U.S. Environmental Protection Agency
290 Broadway, 17<sup>th</sup> Floor
New York, New York 10007-1866

# Reply to USEPA Request for Information Regarding Hazardous Substances at the Kodalux Processing Laboratory Fair Lawn, New Jersey

**April 1997** 

#### TABLE OF CONTENTS

QUESTION 1	COMPANY INFORMATION	1
QUESTION 2	SITE OWNERSHIP/OPERATOR	1
QUESTION 3	PERMITS	2
QUESTION 4	HAZARDOUS SUBSTANCE USAGE LIST	2
QUESTION 5	PROCESS DESCRIPTIONS	2
QUESTION 6	METHODS FOR COLLECTION, STORAGE, TREATMENT AND DISPOSAL OF HAZARDOUS SUBSTANCES	5
QUESTION 7	PROCESS WASTEWATERS	5
QUESTION 8	HAZARDOUS SUBSTANCES GENERATED	7
QUESTION 9	GROUNDWATER DISCHARGE	7
QUESTION 10	ACCIDENTAL DISCHARGE	7
QUESTION 11	SEWER CONNECTION TO PASSAIC VALLEY SEWAGE COMMISSION	9
QUESTION 12	PROCEEDINGS/VIOLATIONS	10
QUESTION 13	ENVIRONMENTAL CLEANUP RESPONSIBILITY ACT INDUSTRIAL SITE RECOVERY ACT	. 10
QUESTION 14	ADDITIONAL ENVIRONMENTAL SAMPLING	. 10
QUESTION 15	MONITORING, PRODUCTION, EXTRACTION WELLS	. <b>11</b>
QUESTION 16	REQUEST FOR INFORMATION CONTACTS	. 12

#### List of Tables

Table 1 Response to Question 4; Material Usage

Table 2 Response to Question 6; Site Operations Waste Disposal Summary

Table 3 Response to Question 6; Site Investigation/Corrective Action
Waste Disposal Summary

#### **List of Figures**

Figure 1 Wastewater and Storm Sewer Location Diagram

Figure 2 Wastewater Process Piping Schematic

#### List of Appendixes

Appendix I Chemical Composition of Photographic Processing Solutions

Appendix II Report Compendium

Appendix III PVSC Permit

Appendix IV PVSC User Charge Self Monitoring Report

Appendix V PVSC Consent Order and Final Judgment

Appendix VI Well Construction Logs

Appendix VII Well Abandonment Logs

Appendix VIII Restated Certificate of Incorporation

#### Introduction

The following are Kodak's responses to a February 26, 1997 request for information, pursuant to CERCLA Section 104, from Ms. Mary Anne Rosa, USEPA Region II regarding the Kodalux Processing Laboratory located in Fair Lawn, New Jersey.

#### Question 1: Company Information

a. Legal Company Name:
Eastman Kodak Company

b. Presiding Company Officers:

George M. C. Fisher, Chairman of the Board and Chief Executive Officer Eastman Kodak Company
343 State Street, Rochester, New York, 14650

- c. State of Incorporation/Agent for Service in NJ:
  Eastman Kodak Company ("Kodak") is incorporated in the state of New Jersey
  CT Corporation is Kodak's agent for service
- d. Certificate of Incorporation:
  A copy is enclosed (see Appendix VIII).
- e. Subsidiary Information:

Kodak has owned the facility to which this request for information was directed since 1961. The facility, however, is currently operated by Qualex, Inc., a wholly owned subsidiary of Kodak.

#### Question 2 Site Ownership/Operator

- a. The facility has been operated as a photographic film processing laboratory since 1961. Kodak maintains facility ownership and initially operated the facility from 1961 to 1988. During 1988, Qualex, Inc. leased the facility from Kodak, and continued to operate the facility as a photo processing laboratory. During 1994, Kodak acquired sole ownership of Qualex, Inc.. Site operations continue to be managed by Qualex, Inc..
- b. See response to 2(a) above. At this time, Kodak does not know who it acquired the facility from in 1961 but is seeking to determine such information. Photoprocessing activities commenced in 1961 at the facility shortly after Kodak acquired it.

- c. Not applicable
- d. Qualex, Inc. operates the facility. Address: 16-31 State Highway No. 208, Fair Lawn, New Jersey, 17410

#### Question 3 RCRA and Federal Water Pollution Control Act Permits

- a. No
- b. The facility discharges process and sanitary wastewater to the Passaic Valley Sewer Commission (PVSC) pursuant to permit no. 08405930

#### **Question 4 Hazardous Substance Usage List**

A review of facility records indicates that the following hazardous substances have been utilized at the facility: 1,1,1 trichloroethane, methylene chloride, formaldehyde and BTEX. See Table 1 "Response to Question 4 Regarding Materials Usage."

#### **Question 5 Process Descriptions**

(a) and (b) The facility is a service industry that processes photographic film to produce photographic prints and slides. The facility utilizes several aqueous processes to produce images from various types of customer film. The film image is developed by C-41 (color negative), E-6 and K-14 (color slide), and Black and White negative processes. Film images are transferred to photographic paper by controlled light exposure. The photographic paper image is then developed by the RA-4 and R-100 (color print), or Black and White process.

Aqueous processing solutions are utilized throughout the process operations. Processing solutions are regenerated for reuse where possible. Waste processing solutions and wash waters from processing operations are subjected to wastewater pretreatment prior to discharge to the publicly owned treatment works (POTW).

The chemical composition of photographic processing solutions is summarized in Table 1 of Kodak's publication J-47. A copy of Table 1 from this publication is attached as Appendix I. In addition to aqueous processing solutions, non-aqueous cleaning solutions and analytical reagents are utilized in limited quantity in support of processing operations.

Following is a list of hazardous substances utilized at the facility. Where known, process information and usage is provided. The following table describes hazardous substance usage at the facility as follows:

Process	Estimated Annual Usage							
Film Processing								
See below								
Laboratory Analysis								
Butyl acetate	Less than one gallon per year							
Ethyl acetate	Less than one gallon per year							
Methylene chloride	Less than one gallon per year							
Wastewater Pretreatment								
Sulfuric Acid	(1990 to 1993) 2,900 gallons per year							
Sulfuric Acid	(1994 to present) 250 gallons per year							
Maintenance								
Trichloroethane	(circa 1970 to 1990) Limited quantity, utilized in one-							
	gallon containers							
Mineral Spirits	(1990 to present) Limited quantity							
Film Cleaning								
Trichloroethane	(1984 to 1990) 55 gallons per year							
Isopropanol	(1990 to present) 50 to 100 gallons per year							
Specialty Processing								
Xylene (50% mixture)	(Unknown to 1991) one gallon quantities							
Super 8 & 16 Processing	<del> </del>							
Trichloroethane	(1973 to 1982) 3,100 gallons per year							
On-site Fleet Vehicle Refueling								
Unleaded gasoline (BTEX)	(circa 1970 to 1990) Usage unknown, total tank							
	capacity was 5,000 gallons							

#### Film Processing:

The facility processes color film, black and white film and color slides. Site records indicate that the following substances have been utilized at the facility, but information regarding the time period utilized or quantities could not be determined

Hazardous substances utilized include:

acetic acid
ethylenediaminetetraacetic acid
hydrobromic acid
phosphoric acid
potassium nitrate
silver halide
sodium bisulfite
sodium ferrocyanide

aluminum sulfate ethylenediamine hydroquinone potassium hydroxide propionic acid silver sulfide sodium ferricyanide sodium hydroxide

Information regarding the concentration of constituents generally utilized in processing solutions is attached in Appendix I.

#### Chemical Handling/Storage:

With the exception of gasoline, handling of liquid hazardous substances included the use of one liter to 55 gallon capacity containers for analysis of quality control samples, dispensing and mixing in process tanks, and cleaning operations. The facility utilizes No. 6 fuel oil for generating heat for building operations. An aboveground storage tank for No. 6 fuel oil is located adjacent to the northeast corner of the main building.

Hazardous substances are stored inside buildings. Liquids are stored metal or plastic drums, or are overpacked into fiber containers. Raw material solids are stored in fiber, metal or plastic drums and plastic or paper bags. The raw materials are transferred to process vessels for pre-mixing and are pumped directly to processing equipment.

#### Waste Generated From Site Operations:

Waste generated from photo processing operations at the facility include: process solutions and waste water; non-hazardous iron and ferricyanide sludge; laboratory wastes, including acids, bases, and solvents; and maintenance wastes.

Waste streams are segregated and managed as described in response to Question 6.

A productivity index which relates to the hazardous substances described above is not available. However, upon reviewing hazardous waste manifests from 1993 to 1996, the facility has generated less than 1.3 tons of hazardous waste per year.

c) No. Other than photoprocessing, there are no other processes employed at the facility.

## Question 6 Methods for collection, storage, treatment and disposal of hazardous substances

a) through d) The following summary describes the practices of Kodak's subsidiary, Qualex, Inc. These practices are believed to have been generally in place in all prior years during which Kodak operated the facility.

#### **Hazardous Substances From Facility Operations:**

Hazardous substance waste management operations are presently conducted by Qualex personnel. The facility utilizes on-facility treatment practices for the pretreatment (silver recovery) of process wastewater which contains silver, and neutralization of process wastewater prior to discharge to the POTW. Recovered silver bearing materials are shipped off-site for precious metals recovery. Wastewater management is further discussed in Kodak's response to *Question 7*.

Solid wastes are disposed of off-site. Solid wastes are containerized in metal or fiber drums and accumulated indoors, prior to shipment to an appropriate off-site treatment facility. The accumulation area consists of a concrete floor and secondary containment capable of containing 55 gallons, the largest capacity container utilized.

A table summarizing recent off-site waste management practices for waste generated from facility operations is attached as Table 2 Site Operations Waste Disposal Summary.

#### Hazardous Substances From Site Investigations/Corrective Actions:

During 1990, CA Rich Consultants, Inc., removed four petroleum underground storage tanks, two floor drains from the basement of the main building, and a dry well utilized for containment of fluids from the solvent storage room's fire suppression system. Subsequent to these activities, Radian Corporation has conducted hydrogeologic studies, at the facility. Ten groundwater monitoring wells have been installed at the facility. Waste generated from these activities include: petroleum contaminated soil, groundwater monitoring well development and purge water, and soil containing hazardous waste (U226/F002) from these activities were managed as in covered piles on pavement, and metal and fiber containers as described in Table 3 Site Investigation/Corrective Action Waste Disposal Summary:

#### Question 7 Process Wastewaters

Process and sanitary wastewaters discharge to a main sewer line along the western

portion of the facility, between the building and Route 208. Storm water from roof drains and catch basins located in parking lot and roadway areas discharge to the storm water sewer for the industrial park. Attached as Figure 1, is a January, 1984 drawing of the facility illustrating the location of the storm and sanitary sewer lines.

#### a. Discharge to Sanitary Sewer

- i) Wastewaters generated at the facility are currently, and believed to always have been, discharged to a sanitary sewer managed by the local publicly owned treatment works, Passaic Valley Sewerage Commission (POTW).
- ii) Photo processing wastewaters are subject to pretreatment consisting of silver recovery and neutralization as appropriate. Effluent which contains silver is pretreated using primary and secondary precious metal recovery systems consisting of electrolytic precipitation and silver salt precipitation. All process effluents are neutralized prior to discharge to the POTW. See attached Figure 2, for a description of the location of the wastewater process piping locations.
- iii) Kodak believes that wastewaters at the facility were always discharged to a sanitary sewer.
- iv) Analytical information concerning Kodak waste materials is identified in Appendix IV (PVSC User Charge Self-Monitoring Report) and in the various consultant reports of Appendix II. Kodak has no additional analytical information concerning wastewater compositions at this time.

#### b. Disposal Floor drains/dry wells

- i) Floor drains located in the basement of the facility are connected to sumps which pump the wastewater to the silver recovery unit or the neutralization chamber prior to discharge to the POTW. During 1990, two floor drains and associated sump and piping were excavated and permanently removed from service by CA Rich Consultants, Inc.
- ii) Drains, to Kodak's knowledge, were never connected to a septic system.
- iii) Drains, to Kodak's knowledge, were never connected to a leach field.
- iv) To Kodak's knowledge, the drains at the facility were always connected to the sanitary sewer with the following possible exception. A dry well associated with the fire suppression system in the facility solvent storage room was removed during 1990. The drain in the solvent storage room was connected to the dry well to remove fluids in case the fire suppression sprinklers were activated. The dry well consisted of five foot by ten foot cinder block walls and a clay soil floor. Neither drains in photoprocessing areas of the facility nor wastewater process piping were ever connected to the dry well.

#### c. Storm sewers/dry wells/catch basins/lagoons

i) No lagoons have ever existed at the facility. Storm water catch basins at the facility are currently lined and have been so at least as early as 1984. Kodak has no information as to the prior lined status of such catch basins.

- ii) Not applicable.
- iii) Storm water from roof drains and catch basins located in parking lot and roadway areas discharge to the storm water sewer for the industrial park

Discharges, if any, from the drywell referenced in (b)(iv) above passed to the clay soil floor therein.

#### d. Diagram of wastewater collection system.

A diagram of the wastewater collection system (Figures 2) is attached.

#### **Question 8 Hazardous Substances Generated**

As stated in response to Question 5, specific information regarding total quantities of hazardous substances generated is not available. However, upon reviewing hazardous waste manifests from 1993 to 1996, facility operations have generated less than 1.3 tons of manifested hazardous waste substances per year. Quantities of hazardous substances discharged to the sanitary sewer and any other solid wastes transported offsite are unknown at this time. Kodak will supplement its response if it finds any additional information relevant to this question.

#### Question 9 Groundwater Discharge

Waste management at the facility has consisted of on-site pretreatment of process wastewaters, prior to discharge to the POTW and off-site disposal of solid and hazardous waste. Wastes were not discharged directly to groundwater.

#### **Question 10 Accidental Discharge**

a) and b)

During 1990, four underground petroleum storage tanks were removed from the facility by CA Rich Consultants, Inc. The tank closure activities consisted of removing two unleaded gasoline tanks (2,000 and 3,000 capacity), two 20,000 gallon No. 6 fuel oil tanks and associated piping. Staining was observed directly below the fuel oil tanks.

Fifteen cubic yards of soil were excavated and disposed of off-site. Although no visible sheen was observed in the area of the unleaded gasoline tank removals, elevated total petroleum hydrocarbon (TPHC) levels were detected in the soil below the former

unleaded gasoline pump. New Jersey Department of Environmental Protection(NJDEP) Action Hotline was notified of the release, and assigned case number 90 05 22 1638. Further investigation and corrective action included the removal and off-site disposal of fifteen cubic yards of soil from below the former gasoline pump area.

In May, 1990, CA Rich Consultants, Inc. removed two floor drains and associated piping from the basement of main processing building. The drains and piping were observed to be corroded. Surrounding soil was stained and moist. Stained soil was excavated and properly disposed of off-site. Soil sample results collected from the bottom and side wall of the excavations detected silver, chromium, cyanide (from the non-toxic ferrocyanide byproduct of photoprocessing), hydroquinone, formaldehyde, and trace levels of acetone, a suspected laboratory contaminant. The NJDEP was notified (case number 90 06 15 1528) of the conditions during a facility visit on July 25, 1990. (CA Rich Consultants, July 1990).

During May through June, 1990, CA Rich Consultants, Inc. removed the dry well associated with the fire suppression system for the solvent storage room. Analysis of dry well construction materials and soil detected the presence of 1,1 dichloroethene, 1,1,1 trichloroethane, and xylene in the dry well construction materials. The NJDEP Action Hotline was notified on June 15, 1990 and the case number 90 06 15 1528 was assigned. The dry well was excavated, including over-excavation below the clay floor, and the floor drains completely grouted to permanently remove from service. (CA Rich Consultants, October 1990).

During September, 1990 Radian Corporation conducted a soil vapor and groundwater investigation in the area of the former petroleum underground storage tanks, the former drywell and exterior wall near the former basement floor drains. Results of this investigation are summarized in Radian's October 29, 1990 report "Soil Vapor Investigation and Groundwater Monitoring Results" for the facility.

In addition to the closure and subsurface assessment activities described above, a September, 1992 Memorandum of Agreement (MOA) between Kodak and NJDEP outlined a remedial investigation and feasibility strategy for the facility. Kodak has implemented groundwater monitoring and hydrologic testing at the facility and reported the results to NJDEP. Copies of these results have been forwarded to USEPA's contractor Roy F. Weston, Inc., who conducted a facility inspection on June 27, 1996.

Additional groundwater monitoring and development of a Remedial Investigation report is planned.

The results of the subsurface investigation activities discussed above are presented in the following reports. Copies of the reports are attached.

July 1990, Basement Floor Drain Subsurface Investigation Prepared by CA Rich Consultants, Inc.

October 3, 1990, Discharge Investigation and Corrective Action Report Prepared by CA Rich Consultants, Inc.

October 29, 1990, Soil Vapor Investigation and Groundwater Monitoring Results Prepared by Radian Corporation

October 1990, Solvent Storage Room Floor Resurfacing and Dry Well Removal Prepared by CA Rich Consultants, Inc.

September 9, 1991, Final Groundwater Report Prepared by Radian Corporation

February 7, 1992 Phase II Groundwater Investigation Report Prepared by Radian Corporation

August 1992, Groundwater Sampling Results Memorandum to Jamie MacBlane, NJDEP from Joseph Gabriel, Kodak

1993, Groundwater Sampling Results Prepared by Radian Corporation

#### Question 11 Sewer Connection to Passaic Valley Sewage Commission

- a) The facility discharges process and sanitary wastewater to the Passaic Valley Sewer Commission (PVSC) pursuant to permit no. 08405930. The current permit became effective on November 14, 1993, and will expire on November 14, 1998. A copy of the permit is attached as Appendix III. Analytical results, if any, generated in connection with the facility's permit application have not been found.
- b) From 1993 to present, the facility has received seven notices of violations (NOV) relating to electrical problems or operator error, which have resulted in minor pH discharges below the permit value of 5.0 Standard Units. These events were of limited duration, ranging from one minute to less than 90 minutes of interim time periods.

Corrective actions included operator training, equipment modifications, neutralization system piping and connection upgrades and the installation of an un-interruptable power supply with surge and spike protection. In addition, during 1995, a delay in the submittal of a Monthly Self Monitoring Report (MR-2), resulted in a notice of violation. The report was submitted and subsequent reporting activities have been completed on time.

The details of how these NOV's were addressed is provided in Kodak's response to question 12 below.

#### **Question 12 Proceedings/Violations**

With respect to operations at the facility, Kodak reports as follows: On May 31, 1995, Qualex entered into a Consent Order and Final Judgment with the PVSC regarding pH discharge limitations for the facility. A sum of \$2,600 was paid to PVSC in settlement of all civil penalties for allegedly violating the provisions of NJSA 58:14-1 et seq. by discharging effluent in excess of the pH discharge limitations of the permit.

Qualex has completed the installation of a pH neutralization system, diverted process final overflows away from the pH neutralization system, connected existing floor drains in the Chem Mix Room to the pH neutralization system, and maintains the system to operate within permit limitations.

A copy of the Consent Order and Final Judgment is attached as Appendix V.

## Question 13 Environmental Cleanup Responsibility Act/Industrial Site Recovery Act

With respect to this facility, Kodak has not conducted an environmental assessment under the Environmental Cleanup Responsibility Act or the Industrial Site Recovery Act.

#### Question 14 Additional Environmental Sampling

To Kodak's knowledge, no other environmental sampling at the facility has been conducted other than the sampling activities previously described in the above responses. The borough of Fair Lawn has conducted groundwater monitoring of two municipal supply wells Numbers 23 and 24 located on or adjacent Kodak property.

Data from ;these wells are summarized in "Revised Final Interim Report for the Fair Lawn Wellfield, Bergen County, New Jersey" dated December 1996 by ICF Kaiser for USEPA.

#### Question 15 Monitoring, Production, Extraction Wells

- a) Ten groundwater monitoring wells have been installed at the facility from 1990 to present. The sampling results for these groundwater monitoring wells are contained in the reports previously referenced.
- i) through iv). The following summary table describes these groundwater monitoring wells. For additional details about these wells, copies of well construction logs are attached as Appendix VI.

Well ID	Date Installed	Depth (ft bgs)				
MW-1	08/02/90	45				
MW-2	03/28/97	33.86				
MW-3	03/27/91	40.13				
MW-4	03/28/91	36.33				
MW-5*	03/28/91	36.23				
MW-6	10/22/91	36.9				
MW-7	10/24/91	35.85				
MW-8	10/22/91	36.88				
MW-9	10/24/91	39.1				
MW-10	10/24/91	35.93				

In addition to the groundwater monitoring wells on the facility, an irrigation well and Fair Lawn municipal supply well No. 24 were located on the facility. The irrigation well was located in the northwest corner of the property. This 10-inch diameter, 485-feet deep well was sealed by Summit Drilling on 12/16/92. A copy of the well abandonment report is attached as Appendix VII. Fair Lawn municipal well No. 24 is located adjacent to the facility along Drive. According to a 02/02/90 NJDEP Division of Water Resources Memorandum, this well has been sealed.

v) Due to building construction activities, monitoring well MW-5 was sealed by Wm. T. Hellings & Don, Inc. on 08/23/93. A copy of the well abandonment report is attached.

#### **Question 16 Request for Information Contacts**

The person answering this request for information is:
Torger N. Dahl, Esq.
Legal Department
Eastman Kodak Company
343 State Street
Rochester, New York 14650-0217
Phone: (716) 724-4899

The following personnel assisted in the preparation of the response to all questions relating to operations and history at the facility.

Site Operator Representative:

Mr. Michael Carten

Mr. Thomas Graham

HSE Coordinator

Qualex, Inc.

16-31 State Highway No. 208

Fair Lawn, New Jersey 07410

(201) 797-0600

Site Owner Representative:

Mr. Thomas Graham

Environmental Engineer

HSE Programs & Technology

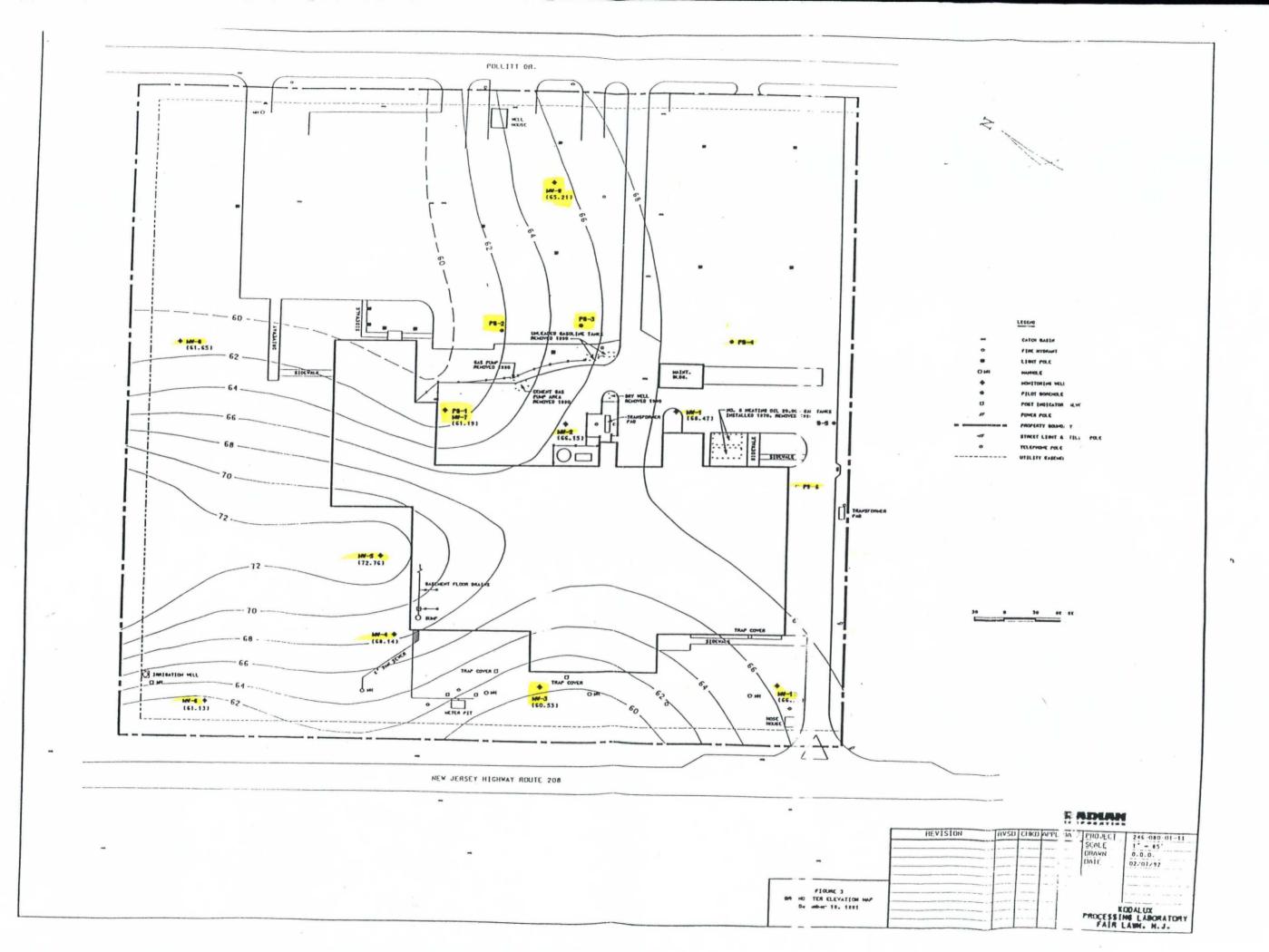
Eastman Kodak Company

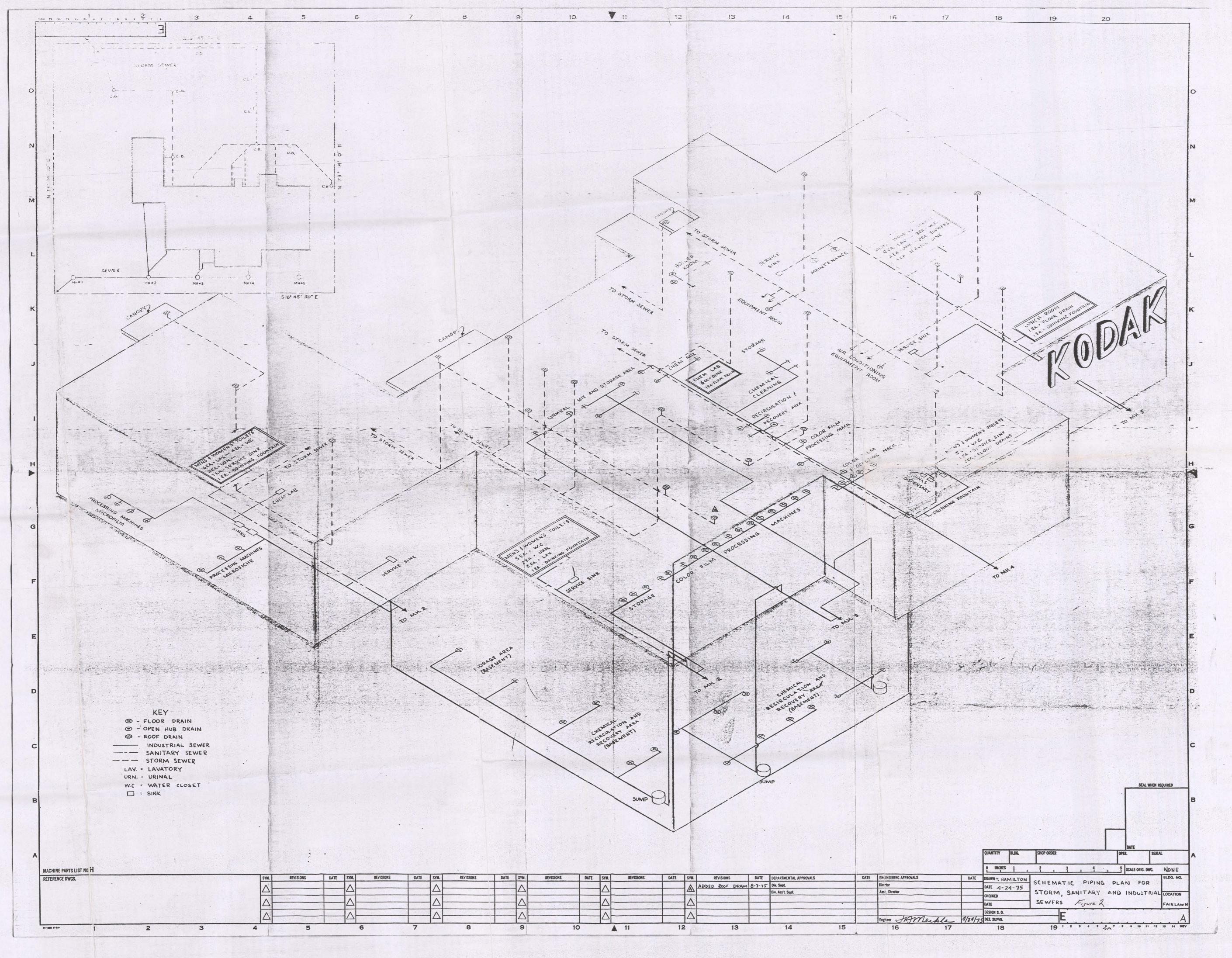
Rochester, New York 14652-6279

(716) 588-0776

As stated in response to Question 2, Kodak requests that correspondence relating to the facility be directed to:

Mr. Joseph Gabriel HSE Programs & Technology Eastman Kodak Company Rochester, New York 14652-6279.





### **TABLES**

Table 1
Response to Question 4 Regarding Material Usage

SUBSTANCE	YES	NO
Trichloroethylene (TCE)		X
Tetrachloroethylene (PCE)		х
Carbon Tetrachloride		X
Cis - 1,2 - dichloroethylene		X
Trans - 1,2 - dichloroethylene		X
1, 1 - dichloroethylene		х
1, 1, 1 -trichloroethane (1, 1, 1 - TCA)	x	
1, 2 - dichloroethylene		х
Chloroform		x
1, 1 - dichloroethane		X
Methylene Chloride	X	****
Trichloroethane	х	
Dichloro benzenes		X
Benzene		x <sup>1</sup>
Toluene		x <sup>1</sup>
Formaldehyde	х	
Ethyl Benzene		$\mathbf{x}^{1}$
BTEX (Benzene, Toluene, Ethylbenzene, Xylene)	x <sup>2</sup>	

Notes: <sup>1</sup>The facility used unleaded gasoline for refueling fleet vehicles until 1990. Benzene, toluene, ethylbenzene, and xylene (BTEX) are components of gasoline. <sup>2</sup>A lacquer, which consisted of 50% xylene, was utilized in small quantity for coating movie film.

Table 2

Response to Question 6
Site Operations Waste Disposal Summary

Year/Volume	Waste Type	•		Treatment
		Transporter	TSDF	Method
1993	Ignitable	Pat Perretti Service, Inc.	Chemical	Incineration
Less than 1.33	solvents and	EPA ID NJD000692343	Conservation of	
tons hazardous	laboratory	and Chem-met Services,	Georgia, Inc. EPA	
waste	chemicals.	Inc. EPA ID MID	ID GAD093380814	Ì
		096693194 and Chemical		
		Conservation Corp. EPA ID		
		FLD 980559728		
1993, continued	Non-hazardous	Free Hold Cartage, Inc.	Chief Supply	Landfill
	waste	EPA ID NJD054126164		
	photochemical	and JB Hunt Special		
	sludge.	Commodities, Inc. EPA ID		
		ARD981908551		
1994	Non-hazardous	Detrex Corp. EPA ID	Chemtron	Landfill
Less than 1.33	waste	NJD047318043 and St	Corporation EPA ID	
tons hazardous	photochemical	Joseph Motor Lines EPA ID	OHD066060609	
waste	sludge.	PAD987358587		
1995	Solvents and	Laidlaw Environmental	Laidlaw	Incineration
Less than 1.33	laboratory	Services, Inc.	Environmental	
tons hazardous	chemicals.	EPA ID MDD980554653	Services, Inc. EPA	
waste			ID MDD980554653	
1995, continued	Non-hazardous	Naumee Express, Inc. EPA	Lancaster Oil	Landfill
	waste	ID NJD986607380	Company EPA ID	
	photochemical		PAD987266749	
1005 .: 1	sludge.			2
1995, continued	Non-hazardous	Clean Harbors	Clean Harbors of	Landfill
•	waste	Environmental Services,	Conn., Inc. EPA ID	
	photochemical	Inc.	CTD000604488	
1006	sludge.	EPA ID MAD039322250	A	
1995, continued	Spent flammable	Clean Harbors	Clean Harbors of	Incineration
	solvents and oils.	Environmental Services,	Baltimore, Inc EPA	
		Inc.	ID MDD980555189	
1996	Count flammatic	EPA ID MAD039322250	A	
Less than 1.33	Spent flammable solvents and oils.	Clean Harbors	Clean Harbors of	Incineration
tons hazardous	containerized in	Environmental Services,	Baltimore, Inc EPA	
waste	metal drums	Inc.	ID MDD980555189	
1996, continued		EPA ID MAD 039322250	E-10:1- P-11	
1770, WIRLINGS	PCB ballast and capacitors.	Milea Truck Sales Corp.	FulCircle Ballast	Recovery of
	capacitors. EPA ID NYD986987105		Recyclers EPA ID	ballasts and
1996, continued	Non-hazardous	Naumaa Eynessa Ina EDA	NYD986980233	landfill
1770, WHUHUCU	waste	Naumee Express, Inc. EPA ID NJD986607380 and	Connecticut Waste	Landfill
·	photochemical	Clean Harbors	Oil, Inc. EPA ID	
İ	sludge.		CTD018844050 and	
	araake.	Environmental Services,	Clean Harbors of	
		Inc.	Conn., Inc. EPA ID	
		EPA ID MAD 039322250	CTD000604488	

Table 3
Response to Question 6
Site Investigation/Corrective Action Waste Disposal Summary

Generator's Agent	Waste Type/ Containers	Waste Management	Transporter	TSDF	Treatment Method
CA Rich Consultants, Inc.	Excavated petroleum contaminated soil, staged on plastic, covered with plastic	Segregated pile, northwest corner of paved parking lot	Buffalo Fuel Corp. EPA ID NYD051809952	Modern Landfill EPA ID NYD051817682	Landfilled
CA Rich Consultants, Inc. and Radian Corp.	Excavated contaminated soil from dry well, staged on plastic, covered with plastic	Segregated pile, northwest corner of paved parking lot	Hazmat Environmental Group EPA ID NYD980769947	CWM Chemical Services, Inc. EPA ID NYD049836679	Landfilled
Radian Corp.	Drill cuttings and debris place in metal and fiber drums	Containers were staged in northwest corner of paved parking lot	Hazmat Environmental Group EPA ID NYD980769947	Eastman Kodak Company EPA ID NYD980592497	Incineration
Radian Corp.	Groundwater monitoring well development and purge water	Containers were staged in northwest corner of paved parking lot	Hazmat Environmental Group EPA ID NYD980769947	Eastman Kodak Company EPA ID NYD980592497	Incineration or chemical, physical or biological treatment

### APPENDIX I

# CHEMICAL COMPOSITION OF PHOTOGRAPHIC PROCESSING SOLUTIONS



# Chemical Composition of Photographic Processing Solutions

There is great concern today that waste effluents from all areas of our society be as "clean" as possible. Sanitary engineers, regulating and environmental control agencies, municipal waste-treatment plants, and others concerned with ecology are implementing this concern by asking questions about wastes in general. These wastes may include those from photographic processing. Even though the wastes may be discharged into a municipal wastetreatment plant, an engineer or administrator may wish to know the types of solutions used (developers, stop baths, fixers, etc) and the general composition of each. The table in this publication attempts to provide such information in a meaningful form. For broader coverage it includes some chemicals that are not present in Kodak packaged processing chemicals. The table does not list all chemicals in all processing solutions, but it is sufficient to relate the types and approximate concentrations of most commonly used chemicals. No one processing solution necessarily contains all of the chemicals listed in any one category of the table. The listing of a chemical simply means that it may be present and, if so, it is probably in the range of concentration shown. Sodium hydroxide and sulfuric acid. for example, are not shown in the table, though they may have been used in preparing the solutions. Those two chemicals are usually of little consequence in waste effluents.

A few chemicals are classified as a group (antifoggants, for example). Sequestering agents and polyglycols are also listed as separate groups of compounds rather than as specific formulas. The latter two are widely used in the chemical industry and in many household products.

Some chemicals are listed in more than one concentration range in the tables. When they are commonly used over a very broad range of concentrations, the tables will show this when it is applicable. It is customary for processors to discharge several processing solutions simultaneously, together with wash waters. This combined with other wastes contributes to the concentrations of each chemical. The mixture of wastes generally has a pH range 6.5 to 9.5

The tabulation presented here is for those chemica's used for processing. Trace amounts of chemicals that may be leached out of the film or paper emulsion during processing are not included, except for the bromide ion and the silver thiosulfate complex ion fisted under "Fixing Baths."

The amounts of processing wastes discharged in any given period of time depend upon the amounts of papers and films processed. Also to be considered is the amount of other water wastes that flow into the same sewer system.

Common methods of measuring waste loads are by tests such as biochemical oxygen demand (BOD) or chemical oxygen demand (COD). Approximation of the waste load from photographic processing chemicals can be made by use of the tables in the Kodak publication No. J-41. BOD<sub>5</sub>/COD. Waste disposal information is available in other publications listed in this publication.

## General Composition of Photographic Processing Solutions Table I • Applies generally to black-and-white, color, and graphic arts processing solutions

Type of Solution		ncentration Range in Grams pe	10 to 100				
and pH Range	less than 1	1 to 10					
Activators pH 11 to 14	Antifoggant	Sequestering agent Tetramethylammonium chloride	Carbonate 2-Diethylaminoethanol 2-Methylaminoethanol Phosphate Sulfite Urea				
Bleach-Fixers pH 6 to 8		Ferrous and ferric EDTA complexes Accelerators	Ammonium Ferric ethylenediamine- tetraacetate (FeEDTA) Sulfite Thiosulfate				
Clearing Baths and Washing Agents pH 5 to 10	Citrate Hydroquinone Sequestering agent		Sulfate Sulfite				
Color Developers pH 10 to 12	Antifoggant Citrazinic acid lodide 1-phenyl-3-pyrazolidone Thiocyanate Boron hydrides	Benzyl alcohol Borate Bromide Citrazinic acid, sodium salt Color developing agents Coupling agent Ethylenediamine Hydroxylamine Polyglycols Sequestering agent Sulfate Sulfite	Benzyl alcohol Borate Carbonate Developing agent Phosphate Sulfate Sulfite				
Black-and-White Developers pH 9 to 12	Antifoggant Bromide Ethylenediamine Sequestering agent lodide Pyrazolidone developing agents	Acetate Borate Bromide Carbonate Catechol Citrate Ethylenediamine Glutaraldehyde Hydroquinone Metacresol Pyrazolidone developing agents Phosphates Polyglycols Sequestering agents p-Methylaminophenol sulfate Sulfite Thiocyanate	Aminoethanol Carbonate Chloride Diaminopropanol Ethyleneglycol Formaldehyde Hydroquinone Methylaminoethanol Polyethylene glycols Sequestering agent Sulfite Imino diethanol Tetramethylammonium Borate				
Dichromate Bleaches pH 0 to 3		Aluminum Dichromate Sulfate	Acetate Bromide				
Ethylenediaminetetra- acetic Acid Bleach pH 5 to 9		EDTA Accelerators	Acetate Ammonium Borate Ferric EDTA (greater than 10 Nitrate				

Type of Solution		oncentration Range in Grams pe	10 to 100		
and pH Range	less than 1	1 to 10	Ferric choride		
Ferric Chloride Bleaches pH 0 to 1		Citrate	Citrate		
Ferricyanide Bleaches pH 5 to 8		Bicarbonate Nitrate Polyglycols Borate	Bromide Ferricyanide Ferrocyanide Phosphates		
Fixers pH 4 to 8		Acetate Aluminum Bicarbonate Bisulfite Borate Bromide Citrate Formalin Sequestering agent Sulfate Thiocyanate	Acetate Aluminum Ammonium Borate Bromide Chloride Citrate Sulfite Thiocyanate Thiosulfate		
Hardeners, Prehardeners pH 3 to 10	Antifoggant Chromium, trivalent Glycine* p-Toluenesulfinic acid	Aluminum Carbonate Formalin Sequestering agent Succinaldehyde Sulfite Trivalent chromium	Acetate Sulfate		
Monobaths pH 10 to 11	Antifoggant	Bromide Sequestering agent	Borate Hydroquinone Sulfite Thiosulfate Carbonate		
Neutralizers pH 4 to 6	Hydroquinone Sequestering agent	Acetate p-Toluenesulfinic acid	Bromide Citrate Hydroxylamine sulfate Sulfate Formate		
Reversal Bleach pH 1		Dichromate	Sulfamic acid Sulfate		
Stabilizers pH 4 to 5	Benzoate Wetting agent	Aluminum Antifoggant Benzoate Citrate Phosphate Sequestering agent Sulfate Sulfite	Acetate Ammonium Bicarbonate Bisulfite Formaldehyde Phosphate Sulfate Thiocyanate (> 100)—No present in color proces stabilizers.		
Stop Baths pH 2 to 4		Aluminum Borate Citrate	Acetate Diethylene glycoi Phosphate Sulfate Benzyl Alcohol		

<sup>\*</sup>Amino acetic acid, not parahydroxyphenyl glycine which is known commonly as "photographic-grade glycine."

# APPENDIX II COMPENDIUM OF ATTACHED REPORTS

#### **COMPENDIUM OF ATTACHED REPORTS**

The results of the subsurface investigation activities for the facility are presented in the following reports. Copies of the reports are attached.

- July 1990, Basement Floor Drain Subsurface Investigation Prepared by CA Rich Consultants, Inc.
- October 3, 1990, Discharge Investigation and Corrective Action Report Prepared by CA Rich Consultants, Inc.
- October 29, 1990, Soil Vapor Investigation and Groundwater Monitoring Results Prepared by Radian Corporation
- October 1990, Solvent Storage Room Floor Resurfacing and Dry Well Removal Prepared by CA Rich Consultants, Inc.
  - September 9, 1991, Final Groundwater Report Prepared by Radian Corporation
  - February 7, 1992 Phase II Groundwater Investigation Report Prepared by Radian Corporation
- August 1992, Groundwater Sampling Results
   Memorandum to Jamie MacBlane, NJDEP from Joseph Gabriel, Kodak
  - 1993, Groundwater Sampling Results Prepared by Radian Corporation



April 23, 1993

Jamie A. MacBlane
New Jersey Department of Environmental Protection
Division of Hazardous Waste Management
2 Babcock Place
West Orange, NJ 07052

Dear Ms. MacBlane:

Subject: Kodalux Processing Laboratory - Fair Lawn, NJ: Groundwater Sampling

Results - September 1992

Enclosed you will find the analytical results from the September 1992 groundwater sampling event conducted at the Kodalux Processing Laboratory in Fair Lawn, NJ. Specifically, the following information is enclosed:

- Table 1 Organic Compounds Detected in Kodalux Monitoring Wells
- · Table 2 Inorganic Results for Kodalux Monitoring Wells
- · Table 3 Groundwater Elevation Data
- · Table 4 Field Data for Kodalux Monitoring Wells
- · Figure 1 Groundwater Elevation Contour Map
- · Raw Analytical Laboratory Reports

We apologize for the delay of this information transmittal. The new Eastman Kodak groundwater contact for this project is Ms. Judy Ausmus. We expect to submit additional correspondence regarding Fair Lawn groundwater issues to your office within the next two weeks.

If you have any questions regarding this information submittal, please feel free to contact Ms. Ausmus at (716) 726-0827.

Sincerely,

Judith E. Ausmus for

Joseph G. Gabriel Corporate Environment

JGG:JEA/finjgw.doc Enclosure

cc: B. Hudzik - Kodalux



Ms. Jamie MacBlane – 2 April 23, 1993

bc: J. Ausmus

D. Bradfield

T. Dahl

D. Fite

H. Lockhart

R. Spiegel

Table 1
Organic Compounds Detected in Kodalux Monitoring Wells - September 1992

			Detection							J	Results (/	œ/L)					
Analyte	Method	Labs	Limit* (µg/L)	MW-I	MW-1 (DUP)	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7	MW-8	MW-9	MW-16	Equipment Blank	Trip Blank	Prep Blanks and Method Blanks
Base - Neutral and Acid Extractable Organics (BNAE)	EPA 625	Recra															
Pyrene			1.9	-	NT	4.8	NT	NT	NT	NT		NT	NT	NT	NT	NT	
Tentatively Identified BNAE Compounds	EPA 625	Repra														***	
Unknown (Scan #406)			c	13.	NT	•	NT	NT	NT	NT	•	NT	NT	NT	NT	NT	
Unknown (Scan #1274)			c	-	NT	6.1	NT	NT	NT	NT	_	NT	NT	NT	NT	NT	
Unknown Acid (Scan #1487)			C.	-	NT	6.4	NT	NT	NT	NT		NT	NT	NT	NT	NT	-
Dimethyl Phenanthene Isomer (Scan #1546)			c	•	NT	6.5	NT	NT	NT	NT		NT	NT	NT	NT	NT	•
Unknown (Scan #1634)	]		C	-	NT	12	NT	NT	NT	NT	-	NT	NT	NT	NT	NT	•
Unknown (Scan #1997)			c	-	NT	7.4	NT	NT	NT	NT		NT	NT	NT	NT	NT	
Hydroquinone	EPA 625	Regra	10	-	NT	-	NT	NT	NT	NT		NT	NT	NT	NT	NT	· <u>-</u>
Volatile Organica	EPA 624	Recra															
Chloroethane			10	-		11		-	-		-	-,	-	-	•	_	
Chloroform			1.6	4.4	4.4	1.7		-		23	-	-	2.8	_			•
1,1-Dichloroethane			4.7	20	20	110	93		9.8	-	-		_	_			
1,1-Dichloroethene			2.8	7.7	8.6	320	330			-	9.9	-				_	
1,2-Dichloroethene (total)			1.6	-	-	=	1.8		-				3.0	-			
Carbon Tetrachloride	]		2.8	•		•	-	-	-	-	-			_	32	_	•
1,1,1-Trichloroethane			3.8	48	46	7900	1300	_	8.0	8.0	95	19	•	-	•	•	
Trichloroethene	]		1.9	3.2	2.6	-		•	-	•	-	-	8.6			-	•
Vinyl Chloride			10	-	•	•	29		-		<b>.</b>	_			_		

Table 1

#### (Continued)

Analyte	Method		Detection Limit* (µg/L)		MW-I (DUP)	MW4	MW-3	MW-4	MW-s		Results ()		MW-9	MW-10	Equipment Blank		Prep Blanks and Method Blanks
Tentatively Identified Volatile Compounds	EPA 624	Reora	c		-	-	•	-	-	-	-	1 <b>-</b>	-	-	-		· <b>-</b>
Formaldehyde	NIOSH 3500	Regra	100	•	-		1500	230	<b>,1500</b>	300	510			•	-	•	•
Petroleum Hydrocarbons	EPA 418.1	Recra	500	22400	NT	880	NT	NT	NT	NT	600	NT	NT	NT	NT	NT	•

Analysis performed by Recra Environmental, Inc.

NT Not analyzed for this constituent.

#### Associated Client Sample ID:

MW-1, 92092801 MW-6, 92092806 MW-1 (DUP), 92092811 MW-7, 92092807 MW-2, 92092802 MW-8, 92092808 MW-3, 92092803 MW-9, 92092809 MW-4, 92092804 MW-10, 92092810 MW-5, 92092805 Equipment Blank, 92092812

Trip Blank, 92092813

<sup>&</sup>lt;sup>4</sup> Method Detection Limits (MDLs) as reported by Recra. Reported MDLs are less than or equal to Contract Required Quantitation Limits (CRQLs). Detection limits are analyte specific, and correspond to those listed in 40 CFR Part 136.

<sup>\*</sup> Tentatively identified compound (TIC) concentrations are estimated based on EPA recommended procedures.

<sup>-</sup> Not detected above the detection limit.

Table 2
Inorganics Results for Kodalux Monitoring Wells - September 1992

											Results (	me/L)					
Analyte	Method	Lab	Detection Limit*		MW-1 (DUP)	MW-2	MW3	MW-4	MW-5	MW-6	MW-7	MW-8	MW-9	MW-10	Equipment Blank	Trip Blank	Prep Blanks and Method Blanks
Total Cyanide	EPA 9010	Reora		0.0083	-	0.014	0.15	-		0.014	0.018		-	_	TN	NT	
Total Chromium	EPA 218.1	Regra	0.010	-	•	as 1	0.012	0.035	0.010	_	0.025	_		_	NT	NT	
Hexavalent Chromium	EPA 7195	Recra	0.010	•		•	•	-	<b>-</b> .	•	0.025	-			NT	NT	•

Analysis performed by Recra Environmental, Inc.

NT Not analyzed for this constituent.

#### Associated Client Sample ID:

MW-1, 92092801 MW-6, 92092806 MW-1 (DUP), 92092811 MW-7, 92092807 MW-2, 92092802 MW-8, 92092808 MW-3, 92092803 MW-9, 92092809 MW-4, 92092804 MW-10, 92092810 MW-5, 92092805

Recra detection limits reported are Instrument Detection Limits (Metals) and Contract Required Quantitation Limits (Cyanide). Total Chromium and Total Cyanide detection limits meet the NYS ASP Superfund CRQLs for these analytes.

<sup>&</sup>lt;sup>b</sup> The EPA method - listed detection limit is 0.05 mg/L.

<sup>-</sup> Not detected above the detection limit.

Table 3
Groundwater Elevation Data

	Groundwater Elevation (ft)
Well ID	9/29/92
MW-1	69.01
MW-2	66.80
MW-3	62.33
MW-4	66.19
MW-5	72.91
MW-6	60.95
MW-7	65.31
MW-8	63.68
MW-9	66.29
MW-10	78.47

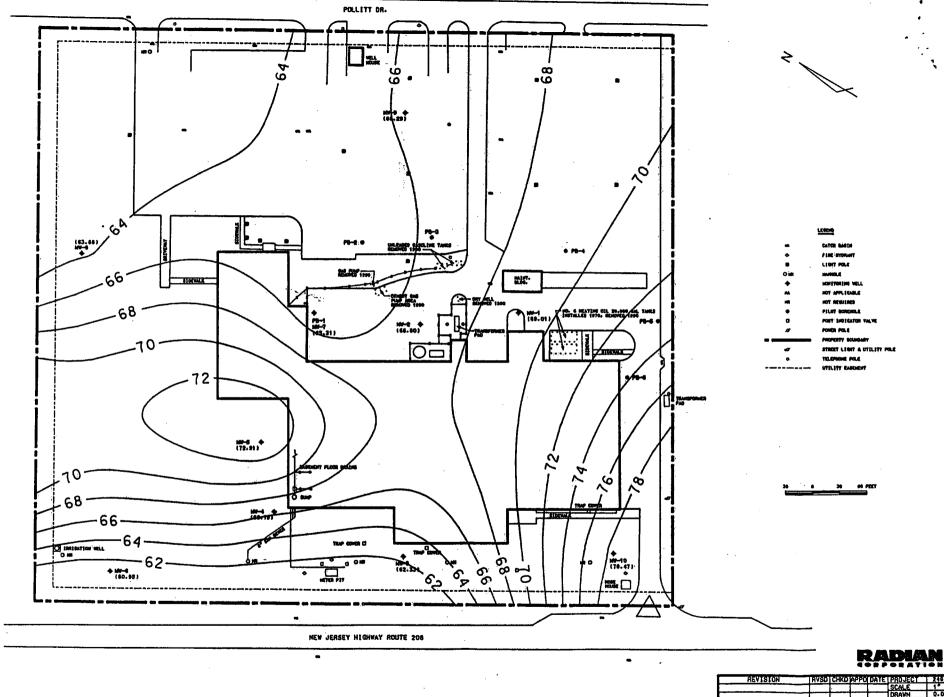
Table 4

Field Data for Kodalux Monitoring Wells

Well ID	Depth to Water	Vel Parge	pH	Temp *C	Cond. (µS)
MW-1	25.64 ft	55 gal (dry)	7.27	15.0	4330
MW-2	26.70 ft	15 gal (dry)	not measured	not measured	not measured
MW-3	32.93 n	10 gal (dry)	7.08	14.9	2130
MW-4	27.50 ft	11 gal (dry)	6.85	15.0	935
MW-5	21.75 ft	24 gal (dry)	6.28	16.0	2000
MW-6	27.20 ft	13 gal (dry)	6.80	16.1	736
MW-7	28.0 ft	10 gal (dry)	7.84	17.0	7290
MW-8	24.70 ft	18 gal (dry)	7.27	14.1	451
MW-9	24.95 ft	36 gal (dry)	7.85	15.5	6380
MW-10	17,70 ft	21 gal (dry)	6.76	14.7	765

Field Notes:

(dry) purged to near dryness.



	REVISION	RVSD	CHKD	APPO	DATE	PROJECT	246-101-01-20
		_				SCALE	1" = 45'
		+			_	DRAVN	0.0.0.
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SEPTEMBER 1992							VOO AL LIN
SAMPLING EVENT		4		-		poneces	KODALUX ING LABORATORY
SAMILETIAG EACHT					$\vdash$	FATR	LAWN. N.J.
	<u> </u>	1				FAIR	LAMIT MICE



August 24, 1992

Ms. Jamie MacBlane
New Jersey Department of Environmental Protection
Division of Hazardous Waste Management
2 Babcock Place
West Orange, NJ 07052

Dear Ms. MacBlane:

Re:

KODALUX PROCESSING LABORATORY, FAIR LAWN, NJ JUNE 1992 GROUNDWATER SAMPLING RESULTS

Enclosed are the results of groundwater sample analyses and groundwater elevation measurements from the June 1992 sampling event at the Kodalux Processing Laboratory, Fair Lawn, New Jersey. We have provided the laboratory analytical reports, tabulated test results, groundwater sampling measures, groundwater elevations, and a groundwater contour map for your review. Monitoring well 9 was not sampled during this event due to inaccessibility. This well will be sampled during the September 1992 sampling event.

#### Summary of Results

A summary of the organic compounds detected in Kodalux monitoring wells in June, 1992 is presented in Table 1. As illustrated in the Table, no Base Neutral Acid Extractables (EPA Method 625) were detected above the Contract Required Quantitation Limits (CRQLs) and no identifiable Tentatively Identified Compounds (TICs) were reported. In addition, TRPH were not detected in monitoring wells at the site, except for well MW-2, which had 0.9 mg/L TRPH. Hydroquinone was not identified above its estimated detection limit of 12 ug/L. The volatile organic compounds (VOCs) detected in the June, 1992 round are comparable to previous rounds, but in most cases, the concentrations of these compounds are greatly decreased from previous rounds. The highest concentration of VOCs were detected in wells MW-1, MW-2, located near the former facility "dry well". Other wells contained significantly fewer compounds at much lower concentrations than MW-1 and MW-2.

A summary of the inorganic compounds detected in monitoring wells in June, 1992 is presented in Table 2. The Total Silver results (EPA Method 7760) were either not detected, or below the Federal Drinking Water Standards Maximum Contaminant Level (MCL) and/or New Jersey MCL. This is consistent with previous sampling events. Total Cyánide, Total Silver, Total and Hexavalent Chromium were not detected in wells MW-1, MW-2, MW-6, and MW-8. Other monitoring wells contained some of these compounds at levels slightly above the limits of detection.

The field data collected during the sampling of monitoring wells is summarized in Table 4. The pH of groundwater ranged from 6.0 to 7.0 and the electrical conductivity ranged from 172 to 1180, within the normal range for groundwater in this area.



A tabulation of groundwater elevation data is provided in Table 3. Groundwater elevations were measured in all monitoring wells on June 11, 1992 and July 16, 1992. The June, 1992 data have been contoured on the attached figure. These groundwater data are consistent with data presented in the Phase II Kodalux Groundwater Investigation Report (February 7, 1992). Groundwater flow is generally from southeast to northwest across the site, but is strongly influenced by the configuration of the bedrock surface beneath the facility.

#### **DICAR Investigation**

With these test results, activities for the fuel oil discharge investigation have been completed in accordance with NJDEP procedures. Reporting requirements and immediate cleanup requirements were addressed and summarized in a DICAR prepared by CA Rich Consultants, Inc. dated October 3, 1990. Discharge mitigation requirements were addressed in the Final Investigation Report (September 9, 1991) and the Phase II Groundwater Investigation Report (February 7, 1992). Closure of Case Number 90 05 22 1638 is requested based on the following findings:

- Soils containing fuel oil in the vicinity of the former storage tanks have been excavated by CA Rich Consultants, Inc.
- The June 1992 round of groundwater analyses did not indicate Base Neutral Acid Extractables (EPA Method 625) in any wells at the site. Moreover, TRPH was only detected in well MW-2, at a concentration below a part per million. Furthermore, no free-product was noted in monitoring wells in June or July 1992, nor was it noted in any of the 6 pilot borings performed in the Phase II Groundwater Investigation.

#### **Dry Well Investigation**

As we discussed in our May 18, 1992 meeting at the Kodalux facility, and in a follow-up letter (Gabriel to MacBlane, NJDEP; May 27, 1992), Kodak will be sampling monitoring wells at the site in September, 1992. However, since several classes of compounds have not been detected in monitoring wells at the facility, we will be eliminating them from the current list of analytes. The compounds to be removed from the current list are: Base Neutral Acid Extractables (EPA Method 625), Hydroquinone, Total Silver, and, since closure of the DICAR is requested, TRPH. The list of analytes for the September, 1992 sampling round will be:

- Volatile organics by EPA Method 624, including o-, m-, and p-xylenes, plus the identification of the 15 highest non-targeted compounds, and the total number of peaks report;
- Formaldehyde by modified NIOSH Method 3500;
- Total Chromium by EPA Method 218.1;
- Hexavalent Chromium by EPA Method 7195; and
- Total Cyanide by EPA Method 9010.

Ms. Jamie MacBlane August 24, 1992-- Page 3

We will be contacting the NJDEP at least two weeks in advance of the September, 1992 sampling event. If you have any questions or concerns in regard to this project please do not hesitate to call me at (716) 588-4369 or Mr. Gary Costanzo of my staff at (716) 588-5441.

Sincerely,

Joseph G. Gabriel

Unit Director, Environmental Services

Corporate Environment

JGG/gvc \fairlawn\mcbln824.ltr

Ms. Jamie MacBlane August 24, 1992-- Page 4

# bc (letter & tables only): T. Lee

- H. Lockhart
- G. Costanzo
- T. Dahl
- D. Bradfield
- D. Fite, CREO
  B. Hudzik, Kodalux Lab.

Radian Corp.

Table 1
Organic Compounds Detected in Kodalux Monitoring Wells - June 1992

										Re	sults (#2	/L)					
Analyte	Method	Labs	Detection Limit <sup>a</sup> (#g/L)	MW-1	MW-1 (DUP)	MW-2	MW-3	MW-4	MW-5	MW-6	MW-7	MW-8	MW-9	MW-10	Equipment Blank	Trip Blank	Prep Blanks and Method Blanks
Base - Nautral and Acid Extractable Organics (BNAE)	EPA 625	Recre	ъ	•	•	•	•	•	-	-	-	-	NS	•	•	-	•
Tentative Identified BNAE Compounds <sup>d</sup>	EPA 625	Regra															
Unknown (Scan #442)	1		· c	-	•	•	•	•	•		9,6	•	NS		-		•
Unknown Acid (Scan #1416)			c	-	•	•	-	•	•	•	•	•	NS		•	•	10
Unknown hydrocarbon (Scan #1541)			۰	•	•	•	•	•	•	•	-	•	NS	-	•	•	20
Unknown Hydrocarbon (Soan #1545)			c	•	•	•	•	-	•	-	-	-	NS	•	•	•	11
Unknown (Scan #1562)			c	•	-		-			<u> </u>	<u> </u>		NS				20
Hydroquinons	EPA 625	Regra	12	-	-				-	•	-	•	NS	-	•		. •
Volatile Organica	EPA 624	Recta															
Benzene			4.0	<u> </u>	<u> </u>	•	0.83	<u> </u>	-	-			NS		•		
Chloroethane			10	6J	6J	10	-	<u> </u>	•	-	-	-	NS	•		·	-
Chloroform			1	2	2	2	<u> </u>	<u>  -</u>		12	-		NS	•.	*	<u>                                     </u>	-
1,1-Dichloroethane			4	22	22	48	9	2.7	<u> </u>	•	0.83	13	NS	<u> </u>	<u> </u>	<u>                                     </u>	-
1,1-Dichloroethene			2	6	7	170	10		•	-	6	9	NS	<u> </u>	•	<u>  - </u>	•
Tetrachloroethene			4	•		0.73	•		<u> </u>	-	•	<u> </u>	NS	<u> </u>	•	<u> </u>	•

Table 1

# (Continued)

			Detection Limit <sup>®</sup>							<u>R</u>	salts (£	e/L)					Prep Blanks
Analyse	Method	Labs	for all N	MW-1	MW-1 (DUP)	MW-2	MW-4	MW-4	MW-5	MW-6	MW-7	MW-8	MW-9	MW-10	Equipment Blank	Trip Blank	and Method Blanks
1,1,1-Trichloroethane			5.0	110	110	4700	55	<b>2</b> J	•	6	70	89	NS	·	-	-	-
Trichloroethene			1.0	1	1	•		•	,-	-	•	-	NS	<u> </u>			•
Vinyl Chloride			10	-	•	21	<b>6</b> J	:- :		. •	-	<u> </u>	NS .		-	-	•
Tentatively Identified Volatile Compounds <sup>4</sup>	EPA 624	Recra	b	- -	-	•	•	•	•	-	-	<u> </u>	NS	•	-	<b>-</b> .	<u>.</u>
	NIOSH 3500	Recra	120	-	•	•	180	•	610	•	-	<u> </u>	NS	-	-	-	-
	EPA 418.1	Recra	500	•	•	900	•	•	-	•	-	•	NS	-	•		•

Analysis performed by Reora Environmental, Inc.

b Detection limits are analyte specific.

NS Not sampled due to monitoring well inaccessability.

Associated Client Sample ID:

MW-1, 92061209

MW-1 (DUP), 92061210

MW-2, 92061208

MW-3, 92051202

MW-4, 92061203

MW-5, 92061204

MW-6, 92061205

MW-7, 92061207

MW-8, 92061206

MW-10, 92061201

Equipment Blank, 92061211

a Method Detection Limits (MDLs) as reported by Recra. Reported MDLs are less than or equal to Contract Required Quantitation Limits (CRQLs).

<sup>&</sup>lt;sup>C</sup> Tentatively identified compound concentrations are estimated based on EPA recommended procedures for TIC identifications.

d Results for tentatively identified compounds are estimated.

J Indicates an estimated value when the mass spectral data indicates the presence of a compound that meets the identification criteria but the result is less than the sample quantitation limit but greater than zero.

<sup>-</sup> Not detected above the detection limit.

Table 2

Inorganics Results for Kodalux Monitoring Wells - June 1992

Analyse	Method	Lab	Detection Limit		MW-1 (DUP)	MW-2	MW-3	MW-4	MW-5	MW-6	Results MW-7		MW-9	MW-10	Equipment Blank	DI Water or Trip Blank	Prep Blanks ans Method Blanks
Total Cyanide	EPA 9010	Roors	0.010	-	-	-	0.034	-	0.010	•	-	•	NS	0.14	•	NA	•
Total Silver	EPA 7760	Recra	0.010	-	-	•	•	0.012	-	•	•	•	NS	0.013	-	NA	•
Total Chromium	BPA 7190	Recra	0.010	-			•	0.024	•		0.034	•	NS			NA	-
Hexavalent Chromium		*************			-	•	•	•	•	•	0.033	.•	NS	•	,	NA	•

Analysis performed by Recra Environmental, Inc.

- Not detected above the detection limit.

NA Sample Trip Blank or DI Water was not analyzed for Inorganic Constituents.

NS Not sampled due to monitoring well inaccessability.

Associated Client Sample ID:

MW-1, 92061209

MW-1 (DUP), 92061210

MW-2, 92061208

MW-3, 92061202

MW-4, 92061203

MW-5, 92061204

MW-6, 92061205

MW-7, 92061207

MW-8, 92061206

MW-10, 92061201

Equipment Blank, 92061211

a Detection limits reported are Instrument Detection Limits (Metals) and Contract Required Quantitation Limits (Cyanide).

Table 3
Groundwater Elevation Data

	Groundwater	Elevation (ft)
Well ID	6/11/92	7/16/92
MW-1	75.70	67.95
MW-2	69.50	67.90
MW-3	68.36	61.86
. MW-4	69.35	68.49
MW-5	72.98	71,96
MW-6	62.57	60.85
MW-7	67.91	65.21
MW-8	65.46	63.38
MW-9	71.60	66.54
MW-10	80.47	77.97

801e.1/KAdelux/g

Table 4
Field Data for Kodalux Monitoring Wells

Well ID	Depth to Water	Vol. Purge	pH	Temp *C	Cond. (#5)	Recovery Rate
MW-1	18.95 ft	30 gal	7.0	20	510	not measured
MW-2	24.00 ft	30 gal (dry)	6.5	21	530	not measured
MW-3	26.90 ft	18 gal (dry)	7.0	17	540	medium
MW-4	24.34 ft	17 gal (dry)	6.0	16	1850	not measured
MW-5	21.68 ft	23 gal (dry)	6.0	16.5	1180	medium
MW-6	25.58 ft	17 gal (dry)	6.5	16	610	not measured
MW-7	25.40 ft	14 gal (dry)	7.0	18	570	alow
MW-8	22.92 ft	23 gal (dry)	7.0	14.5	282	not measured
MW-9	19.64 ft	28 gal (dry)				fast
MW-10	15.70 ft	30 gal (dry)	6.5	20	172	fast

#### Field Notes:

MW-1 to avoid ruining the e-line with oil, recovery data was not collected.

MW-2 to avoid ruining the e-line with oil, recovery data was not collected.

MW-9 not sampled because cars were parked over it.

(dry) purged to near dryness.

JuneOtr Let/KodeTux/

Soil Vapor Investigation and Groundwater Monitoring Results Kodalux Processing Laboratory Fair Lawn, New Jersey

### Prepared for:

Mr. Dick Spiegel Environmental Technical Services Health and Environment Laboratories Eastman Kodak Company Rochester, New York

#### Prepared by:

Radian Corporation 155 Corporate Woods Suite 100 Rochester, New York 14623 (716) 292-1870

October 29, 1990





October 29 1990

155 Corporate Woods Suite 100 Rochester, New York 14623 (716)292-1870 FAX: 716-292-1878

Mr. Dick Spiegel Environmental Technical Services Health and Environment Laboratories Eastman Kodak Company Rochester, New York 14650

Dear Dick,

Enclosed are four copies of Radian's final report on the activities conducted at the Fair Lawn, New Jersey site. If you should have any questions or require further information, do not hesitate to contact me at this office.

We enjoyed working with you on this project and look forward to assisting on other projects as needed.

Sincerely,

Toby Walters Program Manager

cc: J.Gabriel

# CONTENTS

<u>Section</u>		<u>Page</u>
	EXECUTIVE SUMMARY	iii
1.0	INTRODUCTION	1
2.0	SITE SETTING	1
3.0	INVESTIGATIVE AREAS FOR SOIL VAPOR SURVEY	2
	3.1 Vapor Probe Field Methods	4
	3.2 Analytical Parameters	4
	3.3 Monitoring Well Sampling	5
4.0	RESULTS	5
	4.1 Volatile Organics	6
	4.2 Formaldehyde	8
	4.3 Monitoring Well Results	8
5.0	SUMMARY	9
	Appendix A - Soil Vapor Raw Analytical Data	
	Appendix B - Monitoring Well Laboratory Report	

#### **EXECUTIVE SUMMARY**

Radian Corporation was contracted by Eastman Kodak Company to conduct a subsurface vapor investigation and collect a monitoring well sample at the Kodalux Processing Laboratory (Qualex) located in Fair Lawn, New Jersey. The investigation took place 24 through 26 September 1990. The purpose of this investigation was to provide subsurface data on the identity and concentrations of chemical compounds in specific areas of chemical use and processing. Results from the soil vapor investigation and monitoring well analyses are summarized below.

# Soil Vapor Investigation Results

Organic vapors were detected in five of 24 soil bores; identified as 1, 7, 10, 14, and 23. Plate 1 shows the bore locations and organic vapor results. Drilling was completed by Target Environmental Services, Inc. The analysis was performed by Target personnel using a field gas chromatograph. The results of the soil vapor investigation are summarized below:

- 1, 1, 1 TCA was detected at 11,000 parts per billion vapor (ppbv) in bore 23 and at 722 ppbv in bore 1. Both of these bores are located in the area of the former dry well along the eastern side of the building near the loading dock.
- TCE was detected at 171 ppbv in bore 7 located six feet south of the former underground gasoline tank excavation. TCE was also detected at a concentration of 546 ppbv in bore 14 located on the west side of the building near the cafeteria.
- Toluene and xylene were detected in bore 7. Vapor concentrations were 705 ppbv toluene and 342 ppbv xylene.
- Small concentrations of unknown volatiles were detected in bore 10 as well as in some of the bores where other known volatiles were detected.

Four vapor bores (15, 16, 17, and 18) were screened for formaldehyde in addition to the GC analysis. These bores are near the location of the basement floor drains. No formaldehyde was detected in the soil vapor at any of these four bores.

### Monitoring Well Results

At the time of the investigation, Monitoring Well No. 1 was sampled by Radian. The location of the monitoring well is shown in Plate 1.

Analytical work was performed by York Wastewater Consultants, Inc. The results of the analytical work performed on the water sample are summarized below:

#### Volatile organics (EPA Method 8240)

1,1,1 TCA was detected at 41 ppb in the water sample. TCA was not detected in the accompanying trip blank. Acetone was detected at 920 ppb in the water sample, but was also detected in the trip blank at 25 ppb, indicating laboratory contamination of acetone resulted. No other volatile organics were detected within the instrument detection limit using this method.

#### • <u>Silver (ICPES)</u>

Silver was detected at 16.5 ppb in the groundwater sample.

Hydroquinone (EPA Method 8270)

Hydroquinone was not detected in the groundwater sample.

• Formaldehyde (modified Para-Rosanaline calorimetric method)

Formaldehyde was not detected in the groundwater sample.

• Cyanide (EPA Method 335.3)

Cyanide was not detected in the groundwater sample.

#### 1.0 INTRODUCTION

Radian Corporation was contracted by Eastman Kodak Company to conduct a subsurface vapor investigation of the Kodalux Processing Laboratory (Qualex) located in Fair Lawn, New Jersey. The investigation took place 24 through 26 September 1990. The purpose of this investigation was to provide subsurface data on the identity and concentrations of volatile organic compounds (VOC's) and formaldehyde in specific areas of chemical use and processing. Results from the survey are discussed in this final report.

#### 2.0 SITE SETTING

#### Location

The Kodalux facility is located at 16-31 Route 208, in the Town of Fair Lawn, Bergen County, New Jersey. The facility consists of one main processing building which opened in 1954 with an addition built to the north in 1974. In addition, a maintenance garage exists east of the main building. Plate 1 is a plan view of the facility showing building locations.

#### **Drainage**

Surface drainage at the facility flows generally to the north. Storm sewers located in the loading dock area and the parking lots to the east of the main building, parallel the street layout and drain to the northeast. Industrial process water exits the plant through the west wall of the basement and connects to the public sewer running along the west boundary of the site. Excavation in the basement and pressure checks on the pipes conducted earlier have revealed that floor drains leading to the sewer may lack integrity (C.A. Rich, 1990).

#### Geology

The soil at the site consists of approximately six feet of fill material comprised of red-brown fine sand with some clay according to the log for Well

No. 1, installed by C.A. Rich Consultants, Inc. Below the fill material is a layer of red brown sandy clay with some rock fragments which is in the native soil. Based on the geologic log of Well No. 1, the transition from soil and soil-bedrock contact occurs at approximately 15 feet below grade in the area. The bedrock is described as a resistent shale interbedded with sandstone from this depth to the completion depth of the well (45 feet).

#### Groundwater

Depth to groundwater was measured in Monitoring Well No. 1 on 26 September 1990 by Radian. The measured depth to water was 27.3 feet. This indicates that the loose soil and overburden is unsaturated beneath the facility. As stated in the well log, bedrock is first encountered at approximately 15 feet below grade in the vicinity of Monitoring Well No. 1.

#### 3.0 INVESTIGATIVE AREAS FOR SOIL VAPOR SURVEY

The field vapor investigation concentrated on areas where leaks were known, or suspected to have occurred. Radian investigated residual vapor concentrations in these areas by "fingerprinting", if possible, the contaminant type and level. The areas investigated during the study are as follows:

- Former dry well (for fire mitigation);
- Unleaded gasoline UST and fuel island area;
- No. 6 heating oil UST; and
- Exterior wall near basement collection and drain system.

A brief description of the areas is discussed in the following paragraphs.

#### Former Dry Well

The former dry well located east of the facility, adjacent to the present transformer pad, was formerly used in conjunction with a fire

suppression system in the building and was removed in 1990. Soil sampling conducted by C.A. Rich, revealed concentrations of 1,1,1 trichloroethane ranging from 1,200 to 1,500 parts per million (ppm) in the soil adjacent to the former dry well. The dry well was excavated in May, 1990. The excavation terminated at a depth of eight feet.

Radian installed three soil vapor bores (nos. 1,22, and 23) in the vicinity of the former dry well. The bores were drilled to approximately nine feet below grade. Below this depth the soils were difficult to penetrate with the stainless steel probe.

#### Gasoline UTS's (2) and Fuel Island

Two unleaded fuel tanks and island were removed in 1990. They were formerly located between the loading dock area and the parking lot as shown on Plate 1. However, soils surrounding the excavation revealed strong odors of gasoline when the tanks were removed. Radian installed six soil vapor bores to approximately nine feet below grade (three feet below the excavation) to determine the presence or absence of hydrocarbon vapors in the soil adjacent to the tanks. The bores are labeled, 3,4,5,6,7 and 8 on Plate 1.

#### No. 6 Fuel Oil USTs (2)

Two 10,000 gallon underground tanks used for the storage of No. 6 fuel oil were removed during a previous remediation project in 1990. They were formerly located along the east side of the building (Plate 1). Radian installed three bores (nos. 11,12, and 13) in this area.

#### Exterior Wall Near Basement Floor Drains

A total of nine soil vapor bores (nos. 15,16,17,18,19,20 and 21) were installed in the soil adjacent to the basement north of the building (Plate 1). The purpose of drilling in this area was to determine if formaldehyde existed in the shallow soil, as a result of seepage from basement floor

drains. The bores ranged in depth from 6 to 10 feet, as bedrock precluded drilling beyond this depth. The bedrock is shallow in this area, approximately 10 feet below grade.

#### 3.1 Vapor Probe Field Methods

The field investigation was conducted by Radian with subcontractor support from Target Environmental Services, Inc. of Columbia, Maryland. Vapor sample locations were staked by Radian during a previous site visit and the site was cleared for underground utilities prior to commencement of site work.

Target provided all equipment, vans and labor to complete the soil vapor investigation. To collect soil vapor samples, a van-mounted hydraulically driven probe was used to advance three-foot sections of one-inch diameter threaded steel pipe to the desired depth. An electric hammer-drill was used to penetrate pavement where necessary. Target personnel repaired all holes upon completion of sampling. Each soil vapor sample was encapsulated in a pre-evacuated glass vial and pressurized to two atmospheres (15 psig). Final depths ranged between 6 and 10 feet below grade. Depths of bores were selected based on the suspected depth of contamination. In some bores along the northern portion of the site, auger refusal resulted when bedrock was encountered.

Vapor samples were collected through a teflon and stainless steel insert which was inserted down the full length of the pipe and sealed off from the atmosphere.

Two vans were located on-site during the investigation. One contained the sampling equipment and moved from bore to bore. The other van contained the analytical equipment and remained stationary in the parking lot.

#### 3.2 Analytical Parameters

A total of 24 vapor bores were installed during the investigation. Vapor analyses consisted of screening samples on site for the following compounds:

- benzene:
- toluene:
- xylene;
- 1,1,1, trichloroethane (1,1,1 TCA); and
- trichloroethylene (TCE)

These compounds were selected for analysis based on results of prior soil sampling in the area of the former dry well (1,1,1 TCA, TCE), as well as to detect potential leakage or spillage in the area of the removed underground tanks and pump island (benzene, toluene, xylene). Standards were analyzed in order to quantify these compounds. In addition, total PID volatiles were calculated.

Target Environmental Inc. used a field gas chromatograph (GC) (Photovac 10S70) equipped with a photo-ionization detector (PID). Selected locations were also screened for formaldehyde using an MSA pump and MSA detector tubes. These locations were near exterior wall, north of the basement floor drains.

### 3.3 Monitoring Well Sampling

At the time of the investigation, Monitoring Well No. 1 was sampled by Radian. The location of the monitoring well is shown in Plate 1. Analysis of the water was performed for volatile organics using EPA Method 8020, for hydroquinone using EPA Method 8270, for silver using the ICPES Method, for formaldehyde using a colorimetric method (modified Para-Rosanaline), and for cyanide using EPA Method 335.3. These analyses were selected based on past results of soil analyses and chemicals used on site. Analytical work was performed by York Wastewater Consultants, Inc.

#### 4.0 RESULTS

The following discussion presents the results of the soil vapor investigation.

#### 4.1 Volatile Organics

Organic vapors were detected in five of the 24 vapor bores. Table 1 provides a summary of sample depths and vapor concentrations in parts per billion vapor (ppbv) for each of the sample points. Sample locations are shown in Plate 1 and raw analytical data is shown in Appendix A.

As shown in Plate 1 and in Table 1, organic vapors were detected in five soil bores; identified as 1, 7, 10, 14, and 23. The analytical results are presented below:

- 1,1,1 TCA was detected at 11,000 ppbv in bore 23 and at 722 ppbv in bore 1. Both of these bores are located in the area of the former dry well along the eastern side of the building near the loading dock.
- TCE was detected at 171 ppbv in bore 7 located six feet south of the former underground gasoline tank (excavated) pit. TCE was also detected at a concentration of 546 ppbv in bore 14 located on the west side of the building near the cafeteria. Bore 24 was added to the investigation based on the TCE detected at bore 14, However, no TCE was detected at bore 24.
- Toluene and xylene were detected in bore 7 in addition to TCE.

  Vapor concentrations were 705 ppbv toluene and 342 ppbv xylene.
- Small concentrations of unknown volatiles were detected in bore 10 as well as in some of the bores where other known volatiles were detected. It was not possible to identify these compounds in the field as the GC was calibrated with standards for the compounds listed in Table 1 only.

TABLE 1. RESULTS OF FIELD VAPOR ANALYSES, CONCENTRATIONS IN PARTS PER BILLION VAPOR (PPBV)

Sample	<u>Depth</u>	Benzene <sup>1</sup>	<u>Toluene</u> <sup>1</sup>	Xylene 1	111TCA1	TCE1
1	9′	n.d.	n.d.	ņ.d.	722	n.d.
2	. 9 <i>'</i>	n.d.	n.d.	n.d.	n.d.	n.d.
3	9'	n.d.	n.d.	n.d.	n.d.	n.d.
4	7.5′	n.d.	n.d.	n.d.	n.d.	n.d.
5	9'	n.d.	n.d.	n.d.	n.d.	n.d.
6	8′	n.d.	n.d.	n.d.	n.d.	n.d.
7	9'	n.d.	705	342	n.d.	171
8	8′	n.d.	n.d.	n.d.	n.d.	n.d.
9	9'	n.d.	n.d.	n.d.	n.d.	n.d.
10	9'	n.d.	n.d.	n.d.	n.d.	n.d.*
11	9'	n.d.	n.d.	n.d.	n.d.	n.d.
12	9'	n.d.	n.d.	n.d.	n.d.	n.d.
13	91	n.d.	n.d.	n.d.	n.d.	n.d.*
14	8′	'n.d.	n.d.	n.d.	n.d.	546
15	8′	n.d.	n.d.	n.d.	n.d.	n.d.
16	7'	n.d.	n.d.	n.d.	n.d.	n.d.
17	9'	n.d.	n.d.	n.d.	n.d.	n.d.
18	6.5′	n.d.	n.d.	n.d.	n.d.	n.d.
19	6 <i>'</i>	n.d.	n.d.	n.d.	n.d.	n.d.
20	9.5'	n.d.	n.d.	n.d.	n.d.	n.đ.
2.1	10'	n.d.	n.d.	n.d.	n.d.	n.d.
22	9'	n.d.	n.d.*	n.d.	n.d.	n.d.
23	9′	n.d.	n.d.	n.d.	11,000	n.d.*
24	8′	n.d.	n.d.	n.d.	n.d.	n.d.*
Field Cor	ntrol Sampl	.es				
25		n.đ.	n.d.	n.d.	n.d.	n.d.
26		n.d.	n.d.	n.d.	n.d.	n.d.
27		n.d.	n.d.	n.d.	n.d.	n.d.
28	•	n.d.	n.d.	n.d.	n.d.	n.d.

#### Explanation:

<sup>1,1,1</sup> TCA = 1,1,1,-trichloroethane

TCE = trichloroethene

n.d. - not detected

<sup>&</sup>lt;sup>1</sup>Identification based on retention time

<sup>\*</sup> Value reported at less than instrument detection limit (1 ppbv), could not quantify.

#### 4.2 Formaldehyde

Four vapor bores (nos. 15, 16, 17, and 18) were screened for formaldehyde in addition to the other volatiles at the sample depths shown in Table 1. These bores were presumed to be subject to formaldehyde contamination as they were closest to the location of the basement floor drains. Formaldehyde screening was accomplished using an MSA pump and running the soil vapor through an MSA detector tube. No formaldehyde was detected in the soil vapor at any of these four bores.

#### 4.3 Monitoring Well Results

As indicated above, Monitoring Well No. 1 was sampled on 26 September, 1990 during the time of the investigation. The sample was analyzed by York Wastewater Consultants. The results of the analytical work performed on the water sample are shown in Appendix B and are discussed below:

#### Volatile organics (EPA Method 8240)

1,1,1 TCA was detected at 41 ppb in the water sample. TCA was not detected in the accompanying trip blank indicating that TCA is likely present in the groundwater. Acetone was detected at 920 ppb in the water sample, but was also detected in the trip blank at 25 ppb, indicating laboratory contamination of acetone resulted. No other volatile organics were detected within the instrument detection limit using this method.

#### • <u>Silver (ICPES)</u>

Silver was detected at 16.5 ppb in the groundwater sample.

## Hydrioquinone (EPA) Method 8270)

Hydroquinone was not detected in the groundwater sample

- Formaldehyde (modified Para-Rosanaline calorimetric method)

  Formaldehyde was not detected in the groundwater sample.
- Cyanide (EPA Method 335.3)

Cyanide was not detected in the groundwater sample.

#### 5.0 SUMMARY

Soil vapor bores were installed at the Kodalux Processing Laboratory 24 and 25 September 1990 at 24 locations. Of these 24 bores, five showed measurable quantities of organic vapor in the soil. Compounds detected include 1,1,1 TCA, TCE, toluene, and xylene at the bores discussed in this report. Additionally, four bores along the northern portion of the main building were screened for formaldehyde, however, results were negative.

Monitoring Well No. 1 was sampled and analyzed for the parameters indicated in the previous section. Results indicate that 1,1,1, TCA and silver exist in concentrations above method detection limits. Formaldehyde, hydroquinone, and cyanide were all undetected in the water sample. Acetone contamination of the trip blank and water sample from the well resulted in a false positive value reported by the laboratory. All other volatiles were undetected based on the detection limit reported for those compounds.

This concludes Radian Corporation's soil vapor survey of the Kodalux facility. Further questions may be directed to Radian Corporation at the address or phone numbers on the cover of this document.

APPENDIX A
Soil Vapor Raw Analytical Data



September 27, 1990

Mr. Ronald Melkis
Radian Corporation
155 Corporate Woods, Suite 100
Rochester, NY 14623

Dear Mr. Melkis:

Enclosed please find copies of the photoionization data sheets for the Soil Gas Survey performed by TARGET at the Kodalux Processing Services site in Fair Lawn, New Jersey.

If you have any questions about the data sheets, please give me a call at (301) 992-6622. We appreciate the opportunity to provide our services to you on this project.

Sincerely,

TARGET ENVIRONMENTAL SERVICES, INC.

Kenneth B. Ranlet Vice President

		PID DA	TA
JOB CODE	MRKA	DATE <u>9/</u>	25/10
SAMPLE N		_1	TEMPERATURE
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50	15.0	,	
100	27.0		
200	53.0	•	
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AMPLE :	NUMBER _		TEMPERATURE		
TANDARD			This analysis 34		
IELD B	LANK		Standardization 33 Difference + , - 0		
ARRIER	GAS BL	INK	Gain 20		
EEDLE :	BLANK _		Gain 20 Trice 100 /		
GAIN	vs	مسنه	CALCULATIONS		
2	0.21	PHOTOL	ACI		
5	0.53	START	TCE - Rt. 57.1		
10	0.98		.1647 V5 X 6.15 mg/1 =		
20	3.5				
50	15.0		1.01 mg/1		
100	27.0		Toluene - Rt. 93.4		
200	53.0	± 12	.561 Vs x 5.1 mg/1=		
	<del> </del>	;	2.86 mg/1		
		# .1	MEP XYLENE - Rt. 235		
		STOP 9 490.9	.1302 V5 × 8.63 mg/1		
			na*		
		Unicidum i Unicidum 2 Unicidum 3 Unicidum 5	1.12 mg/1		
		Finitiagram 18 Thetagram 3 Thetagram 6	concentrations: TOTAL VOC'S		
			BENZENE TOLUENE		
			p-XYLENE		
MMENTS	]:				

#### PID DATA

MPLE 1	NUMBER _	<u> </u>	·		TEMPERATURE
ANDARI ELD BI					analysis 24 dardization 34 erence + , - 0
RRIER EDLE	GAS BLA	NR			Zo on Size Oop/
GAIN	vs		<b></b>		CALCULATIONS
2	0.21	PH	HOTOUR	AC]	
5	0.53	START	<u> </u>		
10	0.98	· ·	: 1		
20	3.5				
50	15.0				
100	27.0	•			
200	53.0	:			
		ANALYS!S	2 TARGET - IEPP 24 PRKF 20 SPL 0 - PRICE PERK R.T. 1 13,6 2 16.3	#RE4/FPT: 1.7 US 586.5 mUS 2.9 US	
<u>mment:</u>	S:				Concentrations: TOTAL VOC'S BENZENE TOLUENE p-XYLENE

PID DATA					
JOB CODE MULS DATE 9/24/90					
SAMPLE N	sample number			/	TEMPERATURE
STANDARD	STANDARD This as			This an	alysis 31 dization 32
FIELD BL	ank		<del></del>	Differe	nce + ,1
CARRIER	GAS BL	NK	<b>=</b>	-	7 (1)
NEEDLE B	LANK _		•	2 2	n Size 100
GAIN	vs		EVOTO:	<u>ac</u>	CALCULATIONS
2	0.21		PHUIDY		
5	0.53				
10	0.98				
20	3.5				
50	15.0				
100	27.0				•
200	53.0				
			ANALYSIS 8 22 INTERNAL TERP 31 GAIN COTTOURS WARE FE	EP 24 1350 18: 5 TARGET TARGE SPL 5 ON 5. T. AREA/PPT: 1 13.6 463.5 NUS 2 21.7 3.4 US	
COMMENTS	1				Concentrations: TOTAL VOC'S BENZENE TOLUENE p-XYLENE
	<u> </u>	, , , , , , , , , , , , , , , , , , ,		Oper	ator Initials XC

		PID DATA	
OB CODE	= MRKF	DATE $\frac{9/24/90}{}$	
AMPLE 1	NUMBER _	10 TEMPER	ATURE
TANDARI		This analysis	3/
TELD BI	LANK	Standardization Difference + ,	
ARRIER	GAS BLA		
EEDLE I	BLANK	Gain 70 Injection Size	100 pl
(2) 731	•••		
GAIN	vs	PHOTOLOG TO	ATIONS CE - Rt. 57.3
2	0.21	START	CE - Kt. 51.3 1 V5 × 6.15 ng/1 = .43 ng/1 517 VS Total Vo
5	0.53		.43 ng/1
10	0.98	Ş∗≛ ,≥₹	517 US Total US
20	3.5	· · · · · · · · · · · · · · · · · · ·	•
50	15.0	: • • •	
100	27.0		
200	53.0		
		:	
		; ;	
		STOP 8 488.8	
		SAMPLE LIBRARY 1 SEP 24 1990 18:13  ANALYSIS 4 23 TARGET INTERNAL TERM 31 TARE GAIN 28 SM. 10	
•		COMPOUND NAME PERK R.T. AREA-PPH	
		12.6 831.2 aus   14000mm   1   13.6 831.2 aus   14000mm   2   21.6   2.4   US   14000mm   4   52.3   70.1 aus   14000mm   5   73.5 188.6 aus   14000mm   7   127.2 228.8 aus   14000mm   7   127.2 228.8 aus   14000mm   7   140	
			E
OMMENTS	5 <b>:</b>		

	n. 01/-	-	ID DATA	· .
TOB CODE		DATE	9/24/9	C
SAMPLE NU	MBER /		/	TEMPERATURE
STANDARD			This	analysis 3/
FIELD BLA	NK		Diffe	lardization 32
CARRIER G	as blank			2.0
NEEDLE BL	ANK		Gain Inject	ion Size 100µ/
GAIN	vs			CALCULATIONS
2	0.21	610	TOUAC	
5	0.53	START	<u></u>	
10	0.98			
20	3.5	, ;		
-	15.0	:		
	27.0	, <b>.</b> t		
200	53.0			
		STOP 8 SAFFLE LIB AMOUNTS: INTERNAL GAIN COTPOLING LIMITORIAN LIMITORIAN LIMITORIAN LIMITORIAN	29 SPL 11	n 5 5
				ncentrations: TOTAL VOC'S BENZENE TOLUENE p-XYLENE

PLE 1 NDARI		12	TEMPERATURE  This analysis 3/ Standardization 32 Difference + ,
RIER	GAS BLAN	K	Gain 20 Injection Size 100pl
AIN	vs		CALCULATIONS
2	0.21	PHOTOU	AC
5	0.53		
10	0.98		
20	3.5		
50	15.0	i	
100	27.0	:	
200	53.0		
·		STOP 8 480.8  SARPLE LIBRARY 1 SEP 24 1998  ANNELTSIS 2 5 FARGET  INTERNAL TETT 21 FARGET  GAIN 22 SPL 12  COMPOUND DAME FEAK M.T. AREA  LINKNOLM 1 137.7 356.4  LINKNOLM 2 21.8 1.5	PPri
<u> Ment</u>	s:		Concentrations: TOTAL VOC'S BENZENE TOLUENE p-XYLENE

SAMPLE 1	MRKF NUMBER	DATE <u>4</u> /	-1/40	TEMPERATURE
STANDARI	·	<del></del>	This	nalysis3/
FIELD BI			Standa	rdization 32
CARRIER	GAS BLANI			
NEEDLE 1	BLANK			Size _ 100 L
GAIN	vs	PHO <del>TO</del>	VACI	CALCULATIONS
2	0.21	START		TCE - Rt. 57.3
5	0.53		· • • • • • • • • • • • • • • • • • • •	.139 V5× 6.15 wy
10	0.98	# * * * * * * * * * * * * * * * * * * *		
20	3.5			.85 ng/1
50	15.0	* ;		
100	27.0			•
200	53.0			
		STOP 8 489.8 SAMPLE LIBRARY 1 SEP 24 1		
		INTERNAL TEMP 31 TRICET GAIN 29 SPL 13	19:38	
		COMPOLINO MAME PEAK R.T.		
		Unitediate 2 17.8	979,0 mus 174.9 mus 9.1 us 139,0 mus	
				Concentrations: TOTAL VOC'S BENZENE TOLUENE p-XYLENE
COMMENTS	3:			
	·		Ope	rator Initials <u>KC</u>
		•		

JOB CODE MRKF  SAMPLE NUMBER  STANDARD  FIELD BLANK  CARRIER GAS BLANK MOD SYS BLK  MEEDLE BLANK  GAIN  VS  2 0.21  5 0.53  10 0.98  20 3.5  50 15.0  100 27.0  200 53.0		_ moi		ID DATA 9/25/90
### STANDARD #### This analysis 35	JOB CODI	E TIKE	DATE	1/25/40
Standardization 37   Difference + , - 12	SAMPLE 1	NUMBER _		TEMPERATURE
Difference + , - 12	STANDARI	·		
Gain   Injection Size   100   CALCULATIONS	FIELD BI	LANK		
GAIN VS  2 0.21  5 0.53  10 0.98  20 3.5  50 15.0  100 27.0			INK MOD SYS I	Gain 🗸 /
2 0.21 PHOTOUAC  5 0.53  10 0.98  20 3.5  50 15.0  100 27.0	NEEDLE 1	BLANK _		Injection Size ////
5 0.53 10 0.98 20 3.5 50 15.0 100 27.0	GAIN	vs	•	CALCULATIONS
5     0.53       10     0.98       20     3.5       50     15.0       100     27.0	2	0.21	PHOT	QUACI
20     3.5       50     15.0       100     27.0	5	0.53	START	
50 15.0 100 27.0	10	0.98	•	
100 27.0	20	3.5	7	
	50	15.0	į	
200 53.0	100	27.0	÷	
	200	53.0	• • •	
				3. 1880
·				

STOP 8 429.8	
SAMPLE LIBRARY: ANALYSIS # 19 INTERNAL TEMP 35 GAIN 28	SEP 23 1339 :4: 3 TARGET FORE SYS SLK FOR
COMPOUND MANE PE	AK S.T. one

Concentrat:	<u>ions:</u>
TOTAL VOC	'S
BENZENE	
TOLUENE	
p-XYLENE	
_	

COMMENTS:	
	 _

PID DAȚA	•
JOB CODE MRKF DATE 9/25/4	<u>(V</u>
SAMPLE NUMBER	TEMPERATURE
STANDARD Thi	s analysis 33
FIELD BLANK Sta	ndardization 33 ference + , - //
CARRIER GAS BLANK	
NEEDLE BLANK 104 Gain	on Size
GAIN VS	CALCULATIONS
2 0.21 PHOTOUAC	
5 0.53 START	
10 0.98	
20 3.5	
50 15.0	
100 27.0	
200 53.0	
STOP 9 498.8 SEP 25 1999 1 SAPET BERNET BERNET BERNET TO TREE THE TO THE TO THE TO THE TENE TO THE TEN	
CHANCOLIN (3,2 164)	
2	Concentrations: TOTAL VOC'S BENZENE TOLUENE p-XYLENE
COMMENTS: Needle Blank ration	ofter 111 TOA All
and before BTX iff	

Operator Initials 🔀 🤇

MPLE 1	NUMBER _	14	TEMPERATURE
ANDARI ELD BI	-		This analysis 33 Standardization 34 Difference + ,/
RRIER	GAS BLA	INK	200
EDLE 1	BLANK		on Size /OOp/
GAIN	vs	PHOTOLIA	CALCULATIONS
2	0.21	START	TCE-Rt 55.9
5	0.53		.4135 VS × 7.77 Wp
10	0.98	3 h 2	.:.1
20	3.5	) ≠ 6 y ± 1 <del>0</del>	3.21 mg/1
50	15.0	) <b>:</b> ::	
100	27.0	india An Esta	Total Voc's = 1.49
200	53.0	÷ ;	
		STOP 8 488.8  SATPLE LIBRARY 1 SEP 25 1998 17:52  SATPLE LIBRARY 1 SEP 25 1998 17:52  INTERNAL TETP 30 TAKE  GAIN 28 SPL 14  COTROLLING MATE PEAK R.T. AREA/PAY  COTROLLING MATE PEAK R.T. AREA/PAY  LIMINGLIN 2 10.1 1.5 US  LIMINGLIN 2 21.3 1.5 US  LIMINGLIN 5 55.9 413.5 MUS  LIMINGLIN 1 122.7 72.4 MUS  LIMINGLIN 1 122.7 72.4 MUS  LIMINGLIN 1 289.6 141.7 MUS  LIMINGLIN 1 289.6 141.7 MUS  LIMINGLIN 1 289.6 141.7 MUS  LIMINGLIN 1 357.8 558.2 MUS  LIMINGLIN 1 357.8 558.2 MUS	
MMENTS	S:	19 393 5 192 1 and 19 393 5 was	Concentrations: TOTAL VOC'S BENZENE TOLUENE p-XYLENE

•

		PID DATA
JOB COD	e MRK	DATE $\frac{9/25/96}{}$
Sample	NUMBER _	15 TEMPERATURE
STANDAR	<b>D</b>	This analysis 34 Standardization 34
FIELD B	LANK	Difference + ,0
CARRIER	GAS BL	Gain 20
NEEDLE	BLANK _	Injection Size 100 µ
GAIN	vs	CALCULATIONS
2	0.21	PHOTOUGE
5	0.53	STARY
10	0.98	
20	3.5	
50	15.0	
100	27.0	; ;
200	53.0	
		STOP 8 488.8  SRIPLE LIBRARY 1 SEP 75 1939 16:43  ANALTSIS 8 TARGET INTERNAL TEMP 34 PROF 78 SPL 19  COMPOUND MAKE PEAK R.T. AREA/PMM LIMINGUM 1 13.3 728.3 MUS 2 21.5 4.8 US
COMMENT	·	Concentrations: TOTAL VOC'S BENZENE TOLUENE p-XYLENE

	PID DATA	/
JOB CODE MRKF	DATE 9/25/9	0
SAMPLE NUMBER _	16	TEMPERATURE
STANDARD	This	analysis 34 dardization 34
FIELD BLANK	Diff	erence + , - 0
CARRIER GAS BLA	NK	20 /
NEEDLE BLANK		on Size 100 p
GAIN VS		<u>CALCULATIONS</u>
2 0.21	PHOTOUAC	
5 0.53	START	
10 0.98		
20 3.5	<i>&gt;</i>	
50 15.0	:	
100 27.0		
200 53.0		
	= é	
•	*	
	STOP 8 480.0 SAFFLE LIBRARY 1 SEP 25 1990 16:19 ANALYSIS 8 6 TARGET INTERNAL TETP 24 TRRF GAIN 20 SPL 16	
	CONFOUND NAME PERK R.T. AREA/FPTI	
	UNKNOWN         1         13.3         1.9         ÚS           UNKNOWN         2         12.8         649.6         AUS           UNKNOWN         3         21.2         2.7         US           UNKNOWN         2         259.2         51.8         AUS	
COMMENTS:		Concentrations: TOTAL VOC'S BENZENE TOLUENE p-XYLENE

	MRKF umber 17	,	<b>,</b>	TEMPERATURE
TANDARD		<del></del>	This analysis 34 Standardization 34 Difference + , - 0	
RIER	GAS BLANK		_	20
DLE B		<u></u>	Gain Injecti	on Size 100pl
	vs			CALCULATIONS
AIN		•	<b>-</b>	
2	0.21	PHOTOL	JAC	
5	0.53	START		
10	0.98	* *		
20	3.5	* * * *		
50	15.0			
100	27.0			
200	53.0			
		2 :6.8		Concentrations: TOTAL VOC'S BENZENE TOLUENE p-XYLENE
MMENT	:S:			

PID DATA JOB CODE MRKF SAMPLE NUMBER \_\_/8 TEMPERATURE STANDARD This analysis Standardization -Difference + , FIELD BLANK CARRIER GAS BLANK NEEDLE BLANK CALCULATIONS GAIN VS 2 0.21 5 0.53 10 0.98 20 3.5 50 15.0 100 27.0 200 53.0 | STOP 8 | 400.0 | SMMPLE LIBRARY | SEP 25 | 1990 | 12:41 | MANUTES 2 | 12 | TARGET | INTERNAL TEMP 33 | TARK | SALL TEMP 32 | TARK | SALL TEMP 33 | TARK 2 16.7 515.1 MS 3 21.8 2.6 US Concentrations: TOTAL VOC'S BENZENE TOLUENE p-XYLENE **COMMENTS:** 

Operator Initials \_\_\_\_\_

PID DATA JOB CODE MRKF sample number <u>19</u> TEMPERATURE STANDARD This analysis Standardization FIELD BLANK Difference + , -CARRIER GAS BLANK Gain NEEDLE BLANK GAIN VS **CALCULATIONS** 2 0.21 5 0.53 10 0.98 20 3.5 50 15.0 100 27.0 200 53.0 STOP 0 498.9 SAMPLE LIBRARY 1 SEP 25 1939 18: 9 GATPLE LIBRART I SEP 23 RAGINSIS E 14 TARGET PROFE PARE SAL 19 SPL 19 CORPCUMO MARE PERK R.T. GREAVEST Little Committee 2 21.8 2.2 kg 2 21.8 2.2 kg 4 282.6 221.8 ms 3 362.2 68.2 ms 18 382.2 176.4 ms Concentrations: TOTAL VOC'S BENZENE TOLUENE

COMMENTS:

Operator Initials XC

p-XYLENE

			1	PID DAT			
JOB CODE	: MRKI	=	DATE	$\frac{q}{2}$	5/90		
SAMPLE N	SAMPLE NUMBER 20					TEMPERATURE	
STANDARD					This a	nalysis <u>73</u> rdization <u>34</u>	
FIELD BLANK Difference + ,/							
CARRIER	GAS BLA	NK			Gain _	20	
NEEDLE E	BLANK		<del></del>		Iniecti	on Size 100	
GAIN	vs	_				CALCULATIONS	<u>3</u>
2	0.21	<u>E</u>	<u> </u>	<del>10</del> 06	AC]		
5	0.53	STAR					
10	0.98		, : :				
20	3.5						
50	15.0		• .				
100	27.0						
200	53.0						
		ANALY INTERI GAIN	SIS & 1 NAL TEMP O INC MANE IN IN	1 SEP 25 1996 15 TARGET 13 TARE 10 SFL 28 1 13.2 48 2 21: 2 152.8 22 3 369.2 \$2	REA/PPH 11.3 MUS 3,2 US 1.5 MUS	Concentration TOTAL VOC'S BENZENE TOLUENE p-XYLENE	
COMMENT	s:				· ·		·
		<u></u>					

#### TABLE 1.0 30900-1828 RADIAN CORPORATION ANALYTICAL REQUESTS

## Sample Identification

H0228010

TB 09/26/90

## Requested Parameters

TCL volatile organics, hydroquinone, formaldehyde, total cyanide, silver

TCL volatile organics

## TABLE 2.0 30900-1828 RADIAN CORPORATION EPA TCL VOLATILE ORGANICS

All values are ug/L.

Sample Identification

Dilution Factor	1.0	1.0	5.0	
Method Blank I.D.	<u>&gt;G7703</u>	>G7703	>G7703	Quantitation
Compound	Method <u>Blank</u>	TB <u>09/26/90</u>	H0228010	Limits with no Dilution
Chloromethane Bromomethane Vinyl Chloride Chloroethane Methylene Chloride Acetone Carbon Disulfide 1,1-Dichloroethene 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethane 2-Butanone 1,1,1-Trichloroethane Carbon Tetrachloride Vinyl Acetate Bromodichloromethane 1,2-Dichloropropane cis-1,3-Dichloropropene Trichloroethene Dibromochloromethane 1,1,2-Trichloroethane Benzene trans-1,3-Dichloropropene Bromoform 4-Methyl-2-pentanone 2-Hexanone Tetrachloroethene 1,1,2,2-Tetrachloroethane Toluene Chlorobenzene Ethylbenzene Styrene	ממממממממממממממממממממממממממממממממממממממ	00002 <sup>6</sup> 00000000000000000000000000000000	UUUU 6JB 920 93 226J UUUUUU 7J UUUUUUUUUUUUUUUUUUUUUUUUUUUU	10 10 10 10 5 5 5 5 5 5 5 5 5 5 5 5 5 5
Xylene (total)	U	U	U	5

U, J, B - See Appendix for definition.
Note: Sample detection limit = quantitation limit x dilution factor.

### Aqueous

## TABLE 3.0 30900-1828 RADIAN CORPORATION MISCELLANEOUS SEMI-VOLATILE ORGANICS

All values are ug/L.

Sample Identification

Dilution Factor	1.0	1.0	
Method Blank I.D.	>H0472	<u>&gt;H0472</u>	Estimated Quantitation
Compound	Method <u>Blank</u>	<u>H0228010</u>	Limits with no <u>Dilution</u>
Hydroquinone	U	U	10

U - See Appendix for definition. Note: Sample detection limit = quantitation limit  $\mathbf x$  dilution factor.

## TABLE 4.0 30900-1828 RADIAN CORPORATION MISCELLANEOUS METALS

All values are ug/L.

<u>Parameter</u>	<u>H0228010</u>
Silver	16.5

## TABLE 5.0 30900-1828 RADIAN CORPORATION MISCELLANEOUS INORGANICS

# All values are mg/L.

<u>Parameter</u>	<u>H0228010</u>
Total Cyanide	<0.005
Formaldehyde	<0.05

#### APPENDIX

- U Indicates that the compound was analyzed for but not detected.
- J Indicates that the compound was analyzed for and determined to be present in the sample. The mass spectrum of the compound meets the identification criteria of the method. The concentration listed is an estimated value, which is less than the specified minimum detection limit but is greater than zero.
- B This flag is used when the analyte is found in the blanks as well as the sample. It indicates possible sample contamination and warns the data user to use caution when applying the results of this analyte.
- N Indicates that the compound was analyzed for but not requested as an analyte. Value will not be listed on tabular result sheet.
- X Matrix spike compound.
- (1) Cannot be separated from diphenylamine.
- (2) Decomposes to azobenzene. Measured and calibrated as azobenzene.
- A This flag indicates that a TIC is a suspected aldol condensation product.
- E Indicates that it exceeds calibration curve range.
- D This flag identifies all compounds identified in an analysis at a secondary dilution factor.

PID DATA JOB CODE MRKF DATE 9 SAMPLE NUMBER 21 TEMPERATURE This analysis STANDARD Standardization Difference + , -FIELD BLANK CARRIER GAS BLANK Gain Z0 Injection Size NEEDLE BLANK CALCULATIONS VS GAIN 0.21 0.53 5 0.98 10 20 3.5 15.0 50 100 27.0 200 53.0 STOP 0 489.0 SAMPLE LIBRARY 1 SEP 23 1898 18:31 ANALYSIS 2 7 700000 AMALTSIS 2 17 TARGET INTERNAL TEPP 32 PARE GAIN 28 SEL 21 CONFICENCE MATE PERK R.T. AREAUPPH LIMICHULIN 1 13.2 422.3 aus 2 71.8 3.1 US 5 162.2 22.6 aUS 6 284.6 121.3 aus LINGSOLIN Concentrations: TOTAL VOC'S BENZENE

**COMMENTS:** 

Operator Initials Xc

TOLUENE p-XYLENE

JOB CODE	mrk	F DA	PID DATA $\frac{9}{2}$	_	
SAMPLE 1			/	,	TEMPERATURE
STANDARI	o			This an	alysis 54
FIELD BI	LANK			Differe	nce + , - O
CARRIER	GAS BLA	NK		cain 7	()
NEEDLE 1	BLANK _			12. 0	0 n Size 100 p
GAIN	vs	ГОЦ	OTOUA	$\overline{C}$	CALCULATIONS
. 2	0.21	START			Tolume - Ri 93.
5	0.53	,	, mg. " "		.0525 VS X 3.17 ng/
10	0.98		.* · *		.32 mg/1
20	3.5				7
50	15.0				,
100	27.0				
200	53.0		<del>,</del>		
		:47 GA1 CG7	POLINO MANE PEAK	•	Concentrations: TOTAL VOC'S BENZENE TOLUENE p-XYLENE

COMMENTS:

	PID DAȚA	/			
OB CODE MRK	F DATE $\frac{9}{25}$	-/90			
AMPLE NUMBER		TEMPERATURE			
TANDARD		This analysis 34 Standardization 33			
FIELD BLANK Difference + , +1					
CARRIER GAS BLA	NK	in 20			
NEEDLE BLANK		Size OOV			
GAIN VS	[ PHOTOL	CALCULATIONS			
2 0.21	START	111 TCA - Ki. 38.8			
5 0.53		2.7 V5 × 24.25 mg/1 =			
10 0.98	tonk	AL A.			
20 3.5	!	65.5 mg/1			
50 15.0	. ± ≥ . ± >	Peak # 5 15			
100 27.0	•	unknown Rt. 78.5			
200 53.0		Total 100 = 3.86 15			
	<b>;</b>	·			
	STOP 9 422.9 SAPPLE LIBRARY 1 SEP 25 1900	TCE - Rt. 56.1			
	APPLE LIBRARY 1 SEP 25 1998  APPLYSIS # TARGET  INTERNAL TEMP 24 FRACE  GAIN  22 SEL 22	.1147 US X 7.77 wg/1=			
	COMPOLING MANE PEAK R.T. AREA	1			
	12.6   1.5	US US SUS RUS			
	30, S	Concentrations: TOTAL VOC'S BENZENE TOLUENE p-XYLENE			
COMMENTS:					
		Operator Initials			

AMPLE I Tandari IELD Bi	<del></del>		TEMPERATURE  This analysis 32 Standardization 39 Difference + ,2
ARRIER EEDLE	GAS BLAN		Gain 20 Injection Size 100 pt
GAIN	vs	_	CALCULATIONS
2	0.21	PHOTOV	ACI
5	0.53	START	TCE - Rt. 55.
10	0.98	•	
20	3.5	•	.1252 US × 7.77
50	15.0	÷	
100	27.0		.97 ug/1
200	53.0	·	
		STOP 8 488.8  SHOPPLE LIBRARY 1 SEP 25 1939 10  SHOPPLE LIBRARY 1 SEP 25 1939 10  FRANCE 21 FRANCE 10  SHOPPLE 22 FRANCE 10  GAZIN 29 SPL 24  COMPOUND NAME PERK R.T. AREAN  LIBRARDIAN 1 13.2 461.6 m  LIBRARDIAN 2 21.8 2.5  LIBRARDIAN 2 25.9 25.2 125.2 m  LIBRARDIAN 3 25.2 125.2 m  LIBRARDIAN 5 25.2 125.2 m	Ph US US US
COMMENT	S:		Concentrations: TOTAL VOC'S BENZENE TOLUENE p-XYLENE

		PID DAT	ra /	
JOB CODE M	RKF	DATE $\frac{9}{2}$	4/10	
SAMPLE NUMB	ER	/	/	TEMPERATURE
STANDARD		<del>_</del>	This a	nalysis 3/
FIELD BLANK 25 Standardization 32 Difference + ,(				
CARRIER GAS	BLANK	<u>.</u>	Gain 2	7.0
NEEDLE BLAN	K		Gain 2	Size 100 , (
GAIN	vs	_		CALCULATIONS
2 0	.21	PHOTOL	AC	
5 0	.53	START		
10 0	.98			
20 3	.5	;		
50 15	.0			
100 27	.0	:		
200 53	.0	1.		
		. <b>.</b> .		
	inter Gain	LE LIBRARY: SEP 24 1959 TSIS # 17 TARGET RNAL TEMP 3: MRKF 29 FLD BLK 25 NUMB MARTE PEAK R.T. ARI	[A/PON	
COMMENTS:				Concentrations: TOTAL VOC'S BENZENE TOLUENE p-XYLENE
			Oper	ator Initials 🔀

	•		PII	DATA	/
OB CODE	MRKE		DATE _	9/24/9	2
AMPLE NUMBER				,	TEMPERATURE
STANDARD					s analysis 3/ ndardization 32 ference + , - 0
ARRIER	GAS BLA	nk		Gain	20
EEDLE B	LANK		<del></del>	·	n Size _/00 pl_
GAIN	vs		PHCT	OUAC	CALCULATIONS
2	0.21		START		
5	0.53				
10	0.98				
20	3.5		* 1	•	•
50	15.0				-
100	27.0				
200	53.0				
			INTERNAL TETP 31 GAIN 28 CORPOUND MATE PE	SEP 24 1938 18:48 TARGET TRICE TRICE FLD BLK 28 AK R.T. AREA/PPN 1 13.6 282.3 AUS 2 21.7 3.8 US	Concentrations:
					TOTAL VOC'S BENZENE TOLUENE p-XYLENE
COMMENT	<b>s:</b>				

Operator Initials <u>7/C</u>

				PID DAT	A ,		·		
JOB CODE	MRK	F	DATI	$=\frac{9/3}{2}$	5/90	;			
	SAMPLE NUMBER						TEMPERATURE		
STANDARD		<u> </u>	_		Standa	nalysis rdization	33 33		
FIELD BL					Differ	ence + ,			
CARRIER NEEDLE B		WK			Gain Injection		100)		
GAIN	vs		PHO	TOUA	<u> </u>	CALCULA	ATIONS		
2	0.21		START			<b>V</b> = 100 -			
5	0.53		; =		-				
10	0.98		/ = •						
20	3.5		· ·						
50	15.0					,			
100	27.0								
200	53.0		•				·		
		ت د د د	nternal temp	1 SEP 25 1998	REAZPPN 2. 2 mus				
COMMENTS	• :								

	PID DATA
JOB CODE MRKS	DATE 9/25/90
SAMPLE NUMBER	TEMPERATURE
STANDARD	This analysis 33 Standardization 34
FIELD BLANK	Difference + ,/
CARRIER GAS BLANK	Gain 20
NEEDLE BLANK	· ···n Size
GAIN VS	PHOTOUAC CALCULATIONS
2 0.21	START
5 0.53	•
10 0.98	
20 3.5	
50 15.0	
100 27.0	
200 53.0	, • •
	STOP 9 488.9 SAMPLE LIBRARY 1 SEP 25 1996 18:59 ANALYSIS 8 28 TARGET INTERNAL TEMP 33 PRAF GAIN 28 FLD BLK 28 COMPOUND MAKE PEAK R.T. AREA/PPM UNKNOWN 13.8 439.2 MUS UNKNOWN 222.7 1.9 US
COMMENTS:	Concentrations: TOTAL VOC'S BENZENE TOLUENE p-XYLENE

			••							
		PID DAT	<i>f</i>							
JOB CO	DE MRK	F DATE 4/2	5/90							
SAMPLE	NUMBER		TEMPERATURE							
STANDA	STANDARD FOR STX 510 This analysis 33									
FIELD	BLANK		Standardization 33 Difference + , -							
CARRIE	R GAS BL	ANR	- · 2 n							
NEEDLI	BLANK _		Gain 20 Injection Size							
		<del>*************************************</del>								
GAI	vs vs		<u>CALCULATIONS</u> Benzens - Rt. 43.5							
	0.21	PHOTOUR	AC 1 US = 8.76 mg/							
	0.53	START	105 - 8.16 1137							
10	0.98		- 01 12"							
20	3.5		Olner - Rt. 93.4							
50	15.0		1.1 VS = 8.67 mg/							
100	27.0		•							
200		, <b>*</b> c	mep Xylene - Rt. 237							
200	, , , , , , , , , , , , , , , , , , , ,		.9378 Vs = 17.25 mg/1							
	·	· :	1 vs = 18.39 mg/							
		: :								
		STOP 8 400.8	0 Xylene - RL. 285							
		SAMPLE LIBRARY: SEP 28 1998 ANALTSIS # 22 FARGET INTERNAL TEMP 22 PARCET GAIN	3268V5 = 8.8 mg/1							
		CORPOLINO NAME PEAK R.T. ARE	1 VS = 26.93 mg/							
		Unknolin 1 13.3 268. Unknolin 2 16.9 988. Unknolin 3 21.2 1. Unknolin 4 3.5 1. Unknolin 5 93.4 1. Unknolin 6 232.8 332. Unknolin 2 283.9 326.	Concentrations:							

p-XYLENE COMMENTS:

Operator Initials XC

Concentrations:
TOTAL VOC'S\_\_\_\_\_
BENZENE

TOLUENE

		PID DA	<u> </u>
DB CODE	MRKF	DATE $\frac{9}{3}$	25/90
AMPLE N	NUMBER		TEMPERATURE
<b>TANDARI</b>	Mo	D BTX STO	This analysis 34 Standardization 34
IELD BI	LANK		Difference + ,O
ARRIER EEDLE 1	GAS BLAN		Gain On Size 100 1
GAIN	vs	PHOTOUR	CALCULATIONS
2	0.21	START	Benzene - Rt. 43.
5	0.53	janen sulfillusj. V	1. d vs = 8.76 mg. - 1Vs = 4.61 mg.
10	0.98		Johnene - Rt. 93.1
20	3.5		1.4 V5 = 8.67 mg
50	15.0		ius = 6.19 mg
100	27.0	-	mif XYLEIF-Rt. 235
200	53.0		1.7 Vs = 17.25 mg
		LIMENDIAN 5 93.1 1.4 LIMENDIAN 7 235.8 1.7 LIMENDIAN 8 284.3 538.9	2 ×4/5/15 - Fi. 20 15:32  .5909 V5 = 8.8 mg;  V5 = 14.89 mg  aus aus aus aus aus
OMMENT	<b>S:</b>	34:.2 278.;	Concentrations: TOTAL VOC'S BENZENE TOLUENE p-XYLENE

			PID D	ATA	
JOB COD	E MRK	F	DATE 9	125/90	···
SAMPLE 1	-	_	-		TEMPERATURE
STANDARI		CE	_	This a	nalysis 3/ rdization 3/
FIELD B			-	Differ	ence + , - <u>0</u>
NEEDLE 1			<del>-</del>	Gain <u>2</u> Injecti	on Size 100 p
GAIN	vs		PHOT <del>A</del>	WACT	CALCULATIONS TOE
2	0.21		START		2.4 VS = 14.77 mg.
5	0.53			2 · ·	1 vs = 6.15 mg,
10	0.98		; <b>:</b>		
20	3.5				
50	15.0		# # W		
100	27.0		•		•
200	53.0	<u>\$</u> \$			
			MALYSIS 8 2 INTERNAL TEMP 31 GAIN 28	SEF 25 1939 11:21 TARGET TOE STD TOE STD : 13.4 124.6 MUS 3 21.6 3.5 US 4 56.7 2.4 US 6 197.2 155.3 MUS	ncentrations: TOTAL VOC'S BENZENE TOLUENE p-XYLENE

COMMENTS:

		PID DA	TA					
JOB CODE	= MRE	CF DATE 9/	5/90					
SAMPLE 1		/	/	TEMPERATURE				
STANDARI	B	O BTX STD	This an	alysis 33				
FIELD BI	Standardization 33 Difference + , - O							
CARRIER	GAS BL	ANK	- · · · · · · · · · · · · · · · · · · ·	D				
NEEDLE I	BLANK _		(ga) " :	n Size 100 k				
GAIN	vs			CALCULATIONS				
2	0.21	PHOTOV	ACI	Benzene - Rt. 43.9				
5	0.53	START	***************************************	2.4 US = 8.76 mg/1				
10	0.98			1 U5 = 3.65 mg/1 Toluene - Rt. 94.3				
		:		1.7 US = 8.67 mg/1				
20	3.5			1 vs = 5.1 mg/1				
50	15.0			•				
100	27.0			MEP XYIENE - Rt. 238				
200	53.0	;		1 US = 4.63 mg/1				
		į		O XTLENE				
		•		.7676 US = 8.8 ~5/1				
		STOP 0 480.0 SATPLE LIBRARY 1 SEP 25 1939		1 us = 11.46 mg/1				
		ANALTSIS # 2 TARGET INTERNAL TEMP 33 TRKF GAIN 29 BTX ST3 BOX	İ					
		COMPOUND MADE PEAR 4, T. AL						
		UNICIDEN 9 12.9 2 UNICIDEN 5 54.3 1 UNICIDEN 6 238.2 2	0 US 4 US 7 US 8 US					
		2 282.5 pg)	ē mus	Concentrations: TOTAL VOC'S BENZENE TOLUENE				
				p-XYLENE				
COMMENT	S:							
	•		Oper	ator Initials $\underline{\mathcal{K}}$				

AMPLE 1			25/90 TEMPERATURE
TANDARI		TCA #2	This analysis 32 Standardization 32 Difference + , - 0
ARRIER	GAS BLA	NK	Gain 20 Injection Size 100pl
REEDLE 1	BLANK		Injection Size
GAIN	vs		CALCULATIONS
2	0.21		!!! TCA - Rt. 39.2
5	0.53	FHCTC STRET	JAC .5522 VS = 13.39 mg
10	0.98		1 vs = 24.25
20	3.5	ا با مستخطی در افزار	
50	15.0	,	TCE
100	27.0		7.5 vs × 6.15 ~
200	53.0		46.1 mg/1
		SAMPLE LIBRARY 1 SEP 23 1 ANALYSIS 8 5 TARGET INTERNAL TEMP 22 7 RAFF GAIN 28 1,1,1 7 COMPOUND MAKE PEAK R.T.	
		UNKINDLIN 3 21.8	Concentrations: TOTAL VOC'S BENZENE TOLUENE p-XYLENE

PID	DATA	
	,	

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MPLE 1	NUMBER _		-		TEMPERATURE
Andari Eld bi	•	2 STD	<b>-</b>	Standa	nalysis 3   rdization 31   rence + , - 0
	GAS BLA		<b>- ·</b>	Gain _	Size 100pl
GAIN	vs		Duo	100	CALCULATIONS
2	0.21		START		III TCA - Rt
5	0.53			e - content en en en en en en en en en en en en en	
10	0.98		<del></del> :		
20	3.5		<i>:</i>		BENZENE - Rt 4
50	15.0		:		1.8 VS = 8.76.
100	27.0				105 = 4.87
200	53.0				•
	·	·			Tolnene - C+. 1 US = 9.67 1
			INTERNAL TERP 32	renger 19ke 130 syd	
Marin	e.				Concentrations: TOTAL VOC'S BENZENE TOLUENE p-XYLENE
MMENT	8:				
					rator Initials XC

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			PI	D DAT	A			
OB CODE	MRK	F	DATE _	9/2	5/90			
SAMPLE N	AMPLE NUMBER					TEMPERATURE		
This analysis 33 Standardization 33 Difference + , - 0							33 33 0	
CARRIER ONEEDLE B		nk <u>£o</u>	Q 5Y <sup>5</sup> B 	RLK	Gain Injecti	20 on Size	00 M	
GAIN	vs		PHOT	G	AC)	CALCULATIO	ons	
2	0.21		START					
5	0.53							
10	0.98							
20	3.5		. =					
50	15.0		•					
100	27.0							
200	53.0		•					
			STOP 8 498.8 SAPPLE LIBRARY I RIVALTSIS 8 24 INTERNAL TEMP 33 GAIN 22 COPPOUND NAME 9	TARGET		Concentrate TOTAL VOCE PENZENE TOLUENE P-XYLENE	cions:	
COMMENTS	3:						· · · · · · · · · · · · · · · · · · ·	

-	E MPK	r	/25/01	3			
		DATE 9	125/90	2			
AMPLE	NUMBER _	<del></del>		TEMPERATURE			
TANDAR	D	<del>-</del>	This Stand	analysis 29			
FIELD BLANK Difference + ,							
CARRIER	GAS BL	ink <u>Bod</u> sys Ric	Gain	20			
NEEDLE	BLANK _		•	n Size			
GAIN	VS	PHOTOL		CALCULATIONS			
2	0.21	START					
5	0.53						
10	0.98	, =					
20	3.5	<u>:</u> :					
50	15.0	•					
100	27.0			ı			
200	53.0						
		STOP 8 488.9  SMPLE LIBRRET 1 SEP 25 11  RMALTSIS # 7 TARGET  INTERNAL TETP 29 IRKF  GAIN 28 BOD STS  COMPOUND MANE PEAK R.T.					
COMMENT	s:			Concentrations: TOTAL VOC'S BENZENE TOLUENE p-XYLENE			
				perator Initials XC			

	PID DATA
JOB CODE MRK	DATE $\frac{9}{25/90}$
SAMPLE NUMBER	TEMPERATURE
STANDARD	This analysis 35 Standardization 33
FIELD BLANK	Standardization 33 Difference + , - +2
CARRIER GAS BL	INK
NEEDLE BLANK	104 n Size 101 pl
GAIN VS	DIO FOLIAC CALCULATIONS
2 0.21	START.
5 0.53	
10 0.98	
20 3.5	
50 15.0	
100 27.0	
200 53.0	
	STOP 8 488.8  SMITCLE LIBRARY 1 SEP 25 1392 12:95  MINISTRIS 3 18 TARGET  INTERNAL TETP 35 TRKF  JAIN 22 NEEDLE BLK  COMPOUND MARE PERK R.T. AREA/PPTI  LIMINGLIN 13. 559.7 MUS  LIMINGLIN 2 16.9 314.3 MUS
COMMENTS: Ne	Concentrations: TOTAL VOC'S BENZENE TOLUENE p-XYLENE  Ale blank taken of Ler SPL #7
	Operator Initials

PTD DATE

		PID DATA						
JOB COD	E MRK	F DATE 9/24/40						
SAMPLE	TEMPERATURE							
STANDAR	STANDARD This analysis 29							
FIELD B	FIELD BLANK Standardization Difference + ,							
	GAS BL	ANK						
NEEDLE	BLANK _	SOD SYS ECK Injection Size 100 p.						
GAIN	vs	PHOTOLOG CALCULATIONS						
2	0.21	STRET						
5	0.53							
10	0.98							
20	3.5							
50	15.0							
100	27.0							
200	53.0							
		STOP 8 488.8 SAIPLE LIBRART 1 SEP 24 1998 19: 2 AMALYSIS 8 TARGET INTERIORI TEMP 29 TARGE GAIN 29 SYS BLK COMPOUND MANE PEAK R.T. AREALPHI						
COMMENT	S:	Concentrations: TOTAL VOC'S BENZENE TOLUENE p-XYLENE						
		Operator Initials <u>KC</u>						

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		PID DAY	A /					
JOB CODE MRKF DATE 4/24/40								
SAMPLE NUMBE	ER	<del></del>		TEMPERATURE				
STANDARD			This an	alysis 30				
FIELD BLANK	_		Differe	dization				
CARRIER GAS	BLANK _	·						
NEEDLE BLANK	x 104	<u>=</u>	:	n Size				
		<del></del>	•					
GAIN V	/s			CALCULATIONS				
2 0.	.21	STARY	<del>i</del> C)					
5 0.	. 53	7 20						
10 0.	.98	, =						
20 3.	. 5	ja. Natar						
50 15.	. 0							
100 27.	. 0							
200 53.	. 0							
		STOP 9 400.0 SAMPLE LIBRARY I SEP 24 1399 ANALYSIS 3 TARGET INTERNAL TEMP 31 MRKF GAIN 20 MEEDLE BLK COMPOUND MANE PEAK R.T. ARE COMPOUND MANE PEAK R.T. ARE	<b>₽</b> ₽₽N					
COMMENTS: A	jeedie 11/ T/A	clank Lake	n diver	Concentrations: TOTAL VOC'S BENZENE TOLUENE p-XYLENE				

Operator Initials

		PID DAT	A ,	
JOB CODE M	RKF	DATE $\frac{9/2}{}$	4/90	
SAMPLE NUMBI	ER			TEMPERATURE
STANDARD		<del>-</del>	This and	lysis 31
FIELD BLANK		_	Differen	ice + , - <u>6</u>
CARRIER GAS		<del></del>	7	3
NEEDLE BLAN	k BOD Inc		) <u>n</u>	Size 100 pl
GAIN	vs	PHO I-OW	ALI	CALCULATIONS
2 0	.21	STAR!		•
5 0	.53			
10 0	.98			
20 3	.5			
50 15	.0	: :		
100 27	.0			
200 53	.0	<u>.</u>		
		MANATOR S 11	TARGET TARGET TARGET NEEDLE BLK TARGEALPPIN 13.6 250.1 MUS	
COMMENTS:	Needle bl	ank taken	before	Concentrations: TOTAL VOC'S BENZENE TOLUENE p-XYLENE

Operator Initials //

PID DATA JOB CODE MRKE SAMPLE NUMBER TEMPERATURE STANDARD This analysis Standardization 32 FIELD BLANK Difference + , -CARRIER GAS BLANK Gain NEEDLE BLANK 104 GAIN VS **CALCULATIONS** 0.21 5 0.53 10 0.98 20 3.5 50 15.0 100 27.0 200 53.0 STOP 8 ARKS
SAMPLE LISSARY | SEP 24 1992 16:97
ANALTSIS 8 15 TARGET
INTERNAL TEMP 22 MAKE
AND 20 NEETLE BLK COMPOUND WATE PERK R. T. GREAVPON 13.4 252.1 aus Concentrations: TOTAL VOC'S BENZENE TOLUENE p-XYLENE

Operator Initials

		<b>50.0</b> 1	, –	PI	D DAT	<b>A</b>		
J	OB CODI	E MRK	<u> </u>	DATE	9/2	25/90		
S	AMPLE 1	NUMBER _		•	,	TE	MPERA	TURE
S'	TANDARI	·		•		This analy Standardiz	sis	35
F	IELD BI	LANK	_			Standardiz Difference	ation + ,	- 72
C	ARRIER	GAS BL	ANK MOD	545 B	CK	- 0		
	EEDLE 1		_			Gain 20 Injection S	ize _	100-1
=			<u> </u>	<del></del>				
	GAIN	vs		•-		<u>CA</u>	LCULA'	<u> PIONS</u>
,	2	0.21	P	HOTO	DUA			
	5	0.53	START					
	10	0.98						
	20	3.5		•				
	50	15.0	į					
	100	27.0						
,	200	53.0						
			STOP 8 40					
		-	ANRLYSIS S	RY : SEP 25		• (756) * - 2		
			GR!N	23 SYS 9:				
			THE PERSON NAMED IN	E FEAR R.T.	AREA. PPM			
							ncent:	rations:

	Concentrations: TOTAL VOC'S BENZENE TOLUENE p-XYLENE
COMMENTS:	
The state of the s	Operator Initials 🔀

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	PID DAȚA							
JOB CODE	MRKF	-	DATE 9/2	-5/40				
SAMPLE NU	MBER _		,		TEMPERA	TURE		
STANDARD				This a	nalysis rdization	33		
FIELD BLA	NK	<b>-</b>		Differ	ence + ,	- 33		
CARRIER G	GAS BLAN	K		Gain				
NEEDLE BI	LANK	74			on Size _	Dipl		
GAIN	vs			·	CALCULAT	<u>rions</u>		
2	0.21	F	PHOTOU	AC				
5	0.53	STR	R(					
10	0.98		•					
20	3.5		) = 5					
50	15.0	1						
100	27.0							
200	53.0	4						
			PRINCE STATE	25 1359 12: 3 RDET EFF EECLE BLK R AREA/FFT: 13.2 182.8 MUS				
COMMENTS:	Need	1 BTX	ank ha	tion o	Concentr TOTAL V BENZENE TOLUENE p-XYLENE	roc's		
				Ope	rator Init	ials XC		

PID DATA JOB CODE MRKE TEMPERATURE SAMPLE NUMBER This analysis STANDARD standardization Difference + , FIELD BLANK CARRIER GAS BLANK Gain NEEDLE BLANK Nee Tniection Size CALCULATIONS VS GAIN 0.21 0.53 5 10 0.98 3.5 20 50 15.0 27.0 100 200 53.0 STOP 6 409.8 SAFPLE LIBRARY 1 AMALTSIS 8 3 SEP 25 1990 11:30 TARGET INTERNAL TEMP 32 NEEDLE BLK PERK R.T. AREA/PPH 1 13, 4 123, 1 mus Concentrations: TOTAL VOC'S BENZENE TOLUENE p-XYLENE COMMENTS:

Operator Initials XC

			PI	D DATA			
JOB COD	e MRK	F	DATE _	9/25	/90		
SAMPLE	NUMBER .			, , , , , , , , , , , , , , , , , , ,		TEMPERATU	RÉ
STANDAR	D	<del></del>			This a	nalysis	33
FIELD B	LANK	<u> </u>	<del></del>		Differ	ence + , -	0
CARRIER	GAS BL	ank	<del></del>			0	
NEEDLE	BLANK _	104				n Size _ /	00,1
GAIN	vs		PHOT	<u>nua</u>		CALCULATI	<u>ons</u>
2	0.21		START	<u> </u>			
5	0.53		Ţ.				
10	0.98						
20	3.5	•	:				
50	15.0						
100	27.0						
200	53.0		·				
			STOP & 489.9 SAMPLE LINGTY 1 AMALYSIS B INTERNAL TEMP 33 GAIN 28 COMPOLINO MANE P LINGTON MANE L	TARGET MRKF NEEDLE BLK	EA/PPC		
COMMENT	s: Nee	dle Eirl	Blank CIK =	27 Ta	ken	Concentra TOTAL VO BENZENE TOLUENE p-XYLENE	
-					Oper	cator Initi	als

APPENDIX B
Monitoring Well Laboratory Report

# REPORT TRANSMITTAL

CLIENT

Radian Corporation 155 Corporate Woods, Suite 100 Rochester, NY 14623

ATTENTION \_\_\_\_\_Mr. Ron Melkis

The above referenced report is enclosed. Copies of this report and supporting data will be retained in our files in the event they are required for future reference.

If there are any questions concerning this report, please do not hesitate to contact us.

Any samples submitted to our Laboratory will be retained for a maximum of sixty (60) days from receipt of this report, unless other arrangements are desired.

200 MONROE TURNPIKE • MONROE, CONNECTICUT 05458 • (203) 261 4458

# 30900-1828 RADIAN CORPORATION 155 Corporate Woods, Suite 100 Rochester, New York 14623

Re: Kodalux

Attention: Mr. Ron Melkis

### **PURPOSE**

One sample and one trip blank collected on September 26, 1990 was submitted to York Laboratories Division of YWC, Inc. by Radian Corporation. The client requested the samples be analyzed for the parameters listed in Table 1.0.

## **METHODOLOGY**

Volatile organics were determined using purge and trap GC/MS. The instrumentation used was a Tekmar Dynamic Headspace Concentrator interfaced with a Hewlett-Packard Model 5995C GC/MS/DS.

Semi-volatile organics were determined using capillary GC/MS. The instrumentation used was a Hewlett-Packard Model 5890 gas chromatograph interfaced with a Model 5970 Mass Selective Detector.

Metals were determined by ICP using either a JA61 simultaneous ICAP or a PE6500 XR sequential ICP.

All other analyses were conducted according to <u>Standard Methods for the Examination of Water and Wastewater</u>, 16th Edition, 1985, APHA-AWWA-WPCF; and <u>Methods for Chemical Analysis of Water and Wastes</u>, USEPA 600/4-79-020.

#### DISCUSSION

<u>Volatile Organics</u> - Sample TB 09/26/90 was analyzed three times, twice a surrogate was out and once the run was aborted. The client was contacted and requested the lab report only one of the results with the surrogate out of criteria. Since only two VOA vials were sent there was insufficient sample volume to analyze again.

<u>Semi-Volatile Organics</u> - Sample H0228010 was spiked with twice the BNA surrogate concentration than is standard procedure. Recoveries were within criteria based on the actual spiking level.

# <u>RESULTS</u>

The results are presented in the following Tables.

Prepared by:

Jeffrey C Curran Laboratory Manager

JCC/mt

The liability of YWC, Inc. is limited to the actual dollar value of this project.

Discharge Investigation and Corrective Action Report Kodalux Processing Laboratory Fair Lawn, New Jersey

October 3, 1990

# Prepared for:

Eastman Kodak Company
Environmental Technical Services
Health and Environmental Laboratory
901 Elmgrove Road
Building 9 West
Rochester, New York 14653-5710

Prepared by:

CA Rich Consultants, Inc. 404 Glen Cove Avenue Sea Cliff, New York 11579

# TABLE OF CONTENTS

		Page
1.0	INTRODUCTION	1
2.0	SITE CHARACTERIZATION	2
3.0	SOIL REMEDIATION	3
4.0	GROUNDWATER MONITORING	4
5.0	CONCLUSIONS	6
	TABLES	
1.	Summary of Base Neutral Extractable Organic A Soil Sample 6-1	nalysis for
2.	One Half Mile Radius Well Inventory	
3.	Summary of Results from Gasoline Pump Excav	ation
4.	Groundwater Quality	•
	FIGURES	·
1.	Location Map of Kodalux Facility and Adjacent	Properties
2.	Map of No. 6 Heating Oil Excavation & Soil Samp	ple Locations
3.	Map of Unleaded Gasoline Excavations & Soil Sa	ample Locations
4.	Boring Logs and Well Construction Diagrams	
	PLATES	
1.	Site Plan, Kodalux Facility	
	ATTACHMENTS	
1.	Analytical Data	

# DISCHARGE INVESTIGATION AND CORRECTIVE ACTION REPORT KODALUX PROCESSING LABORATORY FAIR LAWN, NEW JERSEY

## 1.0 INTRODUCTION

This report summarizes the investigation of a No. 6 heating oil release at the Kodalux Processing Facility in Fair Lawn, N.J. The Kodalux Facility is situated along Route 208. A map of the Facility and environs is illustrated on Figure 1.

In May and June, 1990, CA RICH CONSULTANTS, INC. conducted an Underground Storage Tank (UST) removal program at the Fair Lawn Facility. Details of the removal are included in a written report which was submitted to NJDEP's Water Resources Division on August 1, 1990. Kodalux's UST facility registration number is 0048026 and includes the following four tanks.

Tank No.	00 <b>0</b> 1	0002	0003	0004
Contents	No. 6 heating oil	No. 6 heating oil	Unleaded gasoline	Unleaded gasoline
Age (years)	16	16	12	21
Size (gallons)	20,000	20,000	3,000	2,000
Construction	Single walled steel	Single walled steel	Single walled steel	Single walled steel
Status	Removed June 90	Removed June 90	Removed June 90	Removed June 90

During the removal of both of the No. 6 heating oil UST's, oil was detected in the subsurface soils directly below the tanks. The NJDEP Action Hotline was notified of this release and the site assigned Case Number 90 05 22 1638.

The No. 6 heating oil tanks were installed on a concrete pad located adjacent to the existing building. Due to the proximity of these tanks and their concrete pads to the existing structure, it was not possible to remove any additional soil from this location without jeopardizing the structural integrity of the building's foundation. One shallow bedrock monitoring well was installed adjacent to the former No. 6 heating oil UST's as part of these DICAR field activities. A summary of the analyses of the soil samples collected at the bottom of the excavation are presented on Figure 2 and Table 1.

Soil samples below the exhumed unleaded gasoline UST's and their appurtenant underground pipelines indicated the presence of elevated Total Petroleum Hydrocarbon (TPHC) values, specifically in the soil below the former gasoline pump. These findings are presented in our June 1990 report and summarized on Figure 3. Approximately 15 yards of gasoline-tainted soil was removed from below the former gas pump area as part of the DICAR field activities.

# 2.0 SITE CHARACTERIZATION

The Borough of Fair Lawn in Bergen County has a population of approximately 33,000 people. The Kodalux Facility is situated in an industrial park in Fair Lawn with frontage on Route 208. Land uses adjoining the Kodalux property include the Fair Lawn Executive Center, Warner Computer Systems, Inc., a vacant warehouse, Becton Dickenson Pharmaceuticals and farmland.

The surficial soil underlying the Kodalux property consists of a sand and clay fill material which, in turn, is underlain by glacial till composed of silty, sandy, gravelly clay - a material that typically has a relatively low permeability. Beneath the till occur the shales of the Brunswick Formation. The Brunswick shale has a low primary permeability, but typically has a moderate to high secondary permeability due to its extensive network of interconnected joints and fractures.

As illustrated on the appended boring log, the monitoring well installed adjacent to the No. 6 heating oil tank excavation encountered approximately 7 feet of fill material followed by glacial till to a depth of approximately 15 feet. The depth to bedrock observed during the excavation program generally ranged from 10 to 15 feet below grade.

Kodalux is serviced by the Fair Lawn Water Department (FLWD) for both its potable and process water supply and by an onsite irrigation well for lawn watering. A list of those wells recorded within a one-half mile radius of the Facility was compiled from a review of information collected at NJDEP's Bureau of Water Allocation, Well Permits Section, and from from the Borough of Fair Lawn Engineering Department. This list is presented on Table 2.

After the release of No. 6 heating oil had been detected, a survey of potential hydrocarbon vapors and free product was performed in the basement of the building, in the boiler room located immediately adjacent to the outside tanks, and in the storm drains near the tanks. In summary, no vapors were detected in the building using an HNU organic vapor detector and an inspection of the storm drains did not reveal the presence of petroleum.

### 3.0 SOIL REMEDIATION

During the UST removal program, a number of soil samples were collected from below the exhumed underground tanks and appurtenant piping as discussed in our report dated June 1990. One soil sample collected from below the unleaded gasoline pump contained Total Petroleum Hydrocarbon (TPHC) at a concentration of 4,500 parts per million. On August 3 and 6, 1990, additional soil was removed from below the former pump using a backhoe. The soil encountered below the pump was glacial till consisting of a silty, sandy, gravelly clay and bedrock below the till is the Brunswick Shale.

The excavation was advanced to the shale bedrock at a depth of 10 feet, and measured approximately 4 feet wide by 10 feet long as illustrated on Plate 1. The excavation was made as wide as possible without disturbing the existing concrete and asphalt roadway. A gasoline odor was detected during the excavation, but no free product or gasoline sheen was observed. Soil placed in a jar with water and shaken did not produce a sheen.

One soil sample was collected from the bottom of the excavation (GP-1) and one sample was composited from the excavation walls at a depth of 3 feet (GP-2). Each of these were analyzed for volatile organics and TPHC. One additional sample (GP-3) was collected at the southeastern end of the excavation at a depth of 3 feet and tested for TPHC.

The results of these analyses, presented on Table 3, indicated that unleaded gasoline had migrated into the subsurface. Based on the initial TPHC results of 4,500 ppm directly below the pump, it appears that the bulk of the gasoline-tainted soil was removed. The excavated soil was staged and covered with bermed and anchored plastic sheeting and will be disposed of properly pending the results of the waste characterization analysis.

# 4.0 GROUNDWATER MONITORING

On July 31, 1990, drilling of a test boring for the purposes of installing a monitoring well was initiated using a Mobile B-57 hollow-stem auger drill rig. Subcontractor drilling was performed under the supervision of a CA RICH field representative. The boring was advanced through 8 feet of dry fill material until reaching refusal on a boulder at the contact with the underlying glacial till. No HNU readings were detected in any of the drilled materials.

At this point, CA RICH decided that an alternative drilling method would be required to successfully, and cost-effectively, complete the installation of a well that could yield meaningful information. On August 2, 1990, Wm. Stothoff Co. completed installation of Well Number 1, a 6-inch diameter, shallow bedrock monitoring well using a Schramm air rotary drill rig. A log of the well is attached to this report. The well was cased to land surface and completed as an open hole in rock from 45 to 20 feet. A trace of No. 6 heating oil was noted in the drill cuttings at approximately 29 feet below grade. Continued development and bailing of this well indicate that although some oil is present in the fractures encountered by this well, the oil does not flow into the well.

Sampling of Well Number 1 and of an on-site irrigation well took place on August 21, 1990. The monitoring well was developed and purged using a new 3-inch diameter PVC bailer. The bailer was washed with Alconox and tap water and then dedicated to this well. Prior to collecting the sample, a water level of 23.69 feet below top of casing was measured and three casing volumes of water were bailed from the well. A groundwater sample was then collected using a decontaminated 3-inch diameter stainless steel bailer equipped with a Teflon (TM) foot valve and bottom emptying device.

The bailer was decontaminated following NJDEP protocol:

- 1. Alconox wash
- 2. Tapwater rinse
- 3. Deionized water rinse
- 4. 10% nitric acid rinse
- 5. Deionized water rinse
- 6. Pesticide grade acetone rinse
- 7. Air dry
- 8. Deionized water rinse

The sampling bailer was lowered slowly into the well so as not to aerate the water. A slow, steady stream of water was achieved to fill the sample bottles using a Teflon (TM) bottom emptying device.

Prior to collecting a sample from the irrigation well, the lawn sprinkler system was allowed to run for 30 minutes to purge the well. After 30 minutes, the sample bottles were collected directly from a spigot located at the well head.

A field blank was collected by passing laboratory-issued deionized water through the stainless steel bailer and into laboratory-issued sample bottles. The field blank was analyzed for volatile and base neutral extractable organics. A laboratory-issued trip blank was obtained the morning of the sample collection and traveled with the sample cooler throughout the day.

The water samples were analyzed for volatile organics using EPA Method 624 + 15 + MTBE and TBA and base neutral extractable organics using EPA Method 625 + 15. The irrigation well was also sampled for silver, hydroquinone and formaldehyde. The results of these analyses, presented on Table 4, do not reveal the presence of semivolatile organic compounds associated with No. 6 heating oil. Bis(2-ethylhexyl)phthalate, a common plasticizer compound was detected in the irrigation water well. This compound is believed to be either a laboratory artifact or associated with plastic piping between the well pump and the sampling spigot at the well head.

Several volatile organic chemical compounds not associated with No. 6 heating oil were also detected. Potential sources of these compounds include other nearby industries with documented groundwater contamination plumes. Also, an ongoing investigation of the Kodalux dry well is being conducted by Kodak under the auspices of the DEP's Division of Water Resources-Enforcement, Metro Region under Case No. 90 06 15 1528.

## 5.0 CONCLUSIONS

- 5.1 No. 6 heating oil released from the former heating oil UST's is presently contained in the soils below the existing Kodalux building and the concrete slab located below the former tanks. Due to the proximity of the former tanks to the existing buildings, it is not technically feasible to remove additional soil from this location without threatening the stability of the building's foundation.
- 5.2 The water samples collected from monitoring well W-1 and the on-site irrigation well do not indicate the presence of semivolatile organic compounds associated with No. 6 heating oil. A second, confirmatory round of sampling was performed on September 21st with sample results due in mid October. These results will be delivered to NJDEP upon receipt.
- 5.3 Several volatile organic compounds were detected in both the newly installed monitoring well and the on-site irrigation well. Neighboring industries with documented groundwater contamination plumes are a potential source of these compounds. Kodak is presently investigating a former dry well in conjunction with the NJDEP's Division of Water Resources-Enforcement, Metro Region under Case No. 90 06 15 1528.
- 5.4 Approximately 15 cubic yards of soil were removed from below the former unleaded gasoline pump. Based on the initial TPHC value of 4,500 ppm, and the 1450 ppm value measured at the bottom of the excavation, it appears that the bulk of the gasoline contaminated soil has been removed.

TABLE 1

# Summary of Base Neutral Extractable Organic Analysis for Sample 6-1

<u>Parameter</u>	Detections (ppm)
2-Methylnapththalene	2,100
Phenanthrene	2,800
Pyrene	3,500
Benzo (a) Anthracene	1,500

TABLE 2
One Half Mile Radius Well Inventory
Kodalux Processing Laboratory
Fair Lawn, NJ

Well owner/ Number	Distance from tanks (feet)	Depth of well (feet)	Screened interval (feet)	Pumping rate (mgd)	Well Use
Kodalux	30	45	20 to 45	n/a	M
Kodalux	570	485	39 to 485	varies seasonal	F ly
FLWD #24	400	325	18 to 325	n/a	N
FLWD #23	600	390	46 to 390	n/a	N
FLWD #10	2,500	300	35 to 300	0.108	P
FLWD #11	2,500	400	54 to 400	0.108	P
FLWD #12	2,500	400	40 to 400	n/a	N
FLWD #14	2,500	400 (ést.)	n/a	0.144	P

Note: M = monitor well, F = irrigation well, P = public supply well, N = not in use, n/a = not available

TABLE 3
SUMMARY OF RESULTS FROM GASOLINE PUMP EXCAVATION

PARAMETER (units)	GP-1 (bottom)	GP-2 (side walls)	GP-3 (s.e. corner)	Field Blank	Trip Blank
Total Petroleum Hydrocarbon (ppm)	1450	354	<27.8	0.42	NA
Toluene (ppb)	32806	119082	NA	ND	N.D
Ethylbenzene (ppb)	ND	109093	NA	ND	ND
M, P-Xylene (ppb)	148020	466024	NA	N.D	ND
O-Xylene (ppb)	71821	212068	NA	ND	ND

ND - Not detected at method detection limit

NA - Not analyzed

TABLE 4

GROUNDWATER QUALITY

Kodalux , Fair Lawn, N J

	SAM	PLE ID#	FIELD BLANK	TRIP BLANK
PARAMETER	Well #1 W - 1	irrig. Well #IW	FB-8/21	TB-8/21
VOLATILES (PPB)				
1,1-Dichloroethene	9	94	ND	ND
Methylene Chloride	13 B	9 B	ND	9B
1,1-Dichloroethane	25	37	ND	ND
1,1,1-Trichloroethane	110	218	ND	ND
Chloroform	ND	122	ND	ND
Carbon Tetrachloride	ND	36	ND	ND
Trichloroethene	ND	66	ND	ND
Tetrachloroethene	ND	1.4	ND	ND
Tert-Butyl-Alcohol	34	ND	ND	ND
BASE NEUTRALS (PPB) Bis(2-Ethylhexyl)Phthalate	ND	17	ND	N/A
OTHER PARAMETERS (PPM)				
Formaldehyde	N/A	68	N/A	N/A
Hydroquinone	N/A	ND ·	N/A	N/A
Silver	N/A	ND	N/A	N/A

B - Indicates compound also present in blank.

ND - Not Detected.

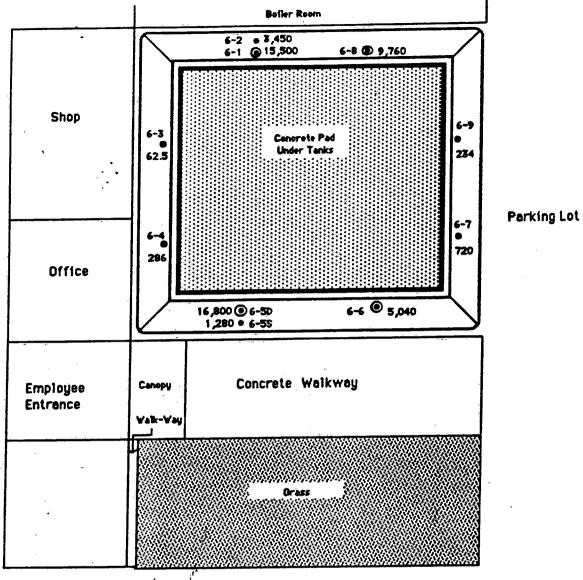
N/A - Not Applicable.

PPB - Parts per billion



Location Map of Kodalux Pacility and Adjacent Properties

CA RICH CONSULTANTS, INC. Certified Ground-Water and Environmental Specialists	Kodalux Pacility DICAR Fair Lawn, New Jersey				
	Prepared By: STS	Date: August 1990			
404 Glen Cove Avenue, Sea Cliff, N.Y. 11579	Reviewed By: EAW	Figure: )			



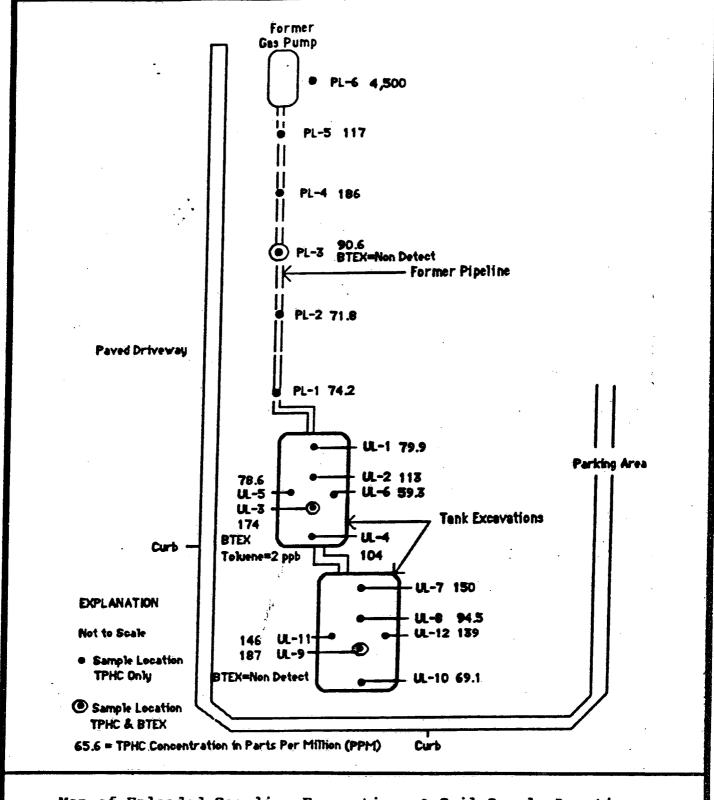
EXPLANATION (Not to Scale)

- Sample Legation
   TPHC only
- Sample Legation
   TPHC & BNE

84.5 = TPHC Concentration in Parts Per Million (PPM)

Map of No. 6 Heating Oil Excavation & Soil Sample Locations

CA RICH CONSULTANTS, INC. Certified Ground-Water and Environmental Specialists	Kodalux Processing Laboratory Fair Lawn, New Jersey				
	Prepared By:	STS	Date:	July 1990	
404 Glen Cove Avenue, Sea Cliff, N.Y. 11579	Reviewed By:	EAW	Figure:	2	



Map of Unleaded Gasoline Excavations & Soil Sample Locations

CA RICH CONSULTANTS, INC. Certified Ground-Water and Environmental Specialists		lalux Processing Laboratory Fair Lawn, New Jersey		
	Prepared By:	STS	Date:	July 1990
404 Glen Cove Avenue, Sea Cliff, N.Y. 11579	Reviewed By:	EAW	Figure:	3

# CA Rich Consultants Inc. Well/Boring Log

We 11/E	oring No	. Mix-1 Ge	ologist/	Inspecto	r on site	e: Steven Sobstyl (CA Rich Consultants) Page 1 of 2
1			-			Fair Lawn, N.J. Date Drilled 8-2-90 Depth: 45 ft.
		•				thod: Hollow Stem Auger/Air Org. Vapor Instrmts. HNU
Depth (ft)	Sample No.	Blows per 6°	Smpl. Intvl.	Adv/Rec (inch)	Org.Vap (ppm)	Sample Description Strata Remarks Change
-		5 7 12	0 to 2.5	24/18	0.0	Red brown fine sand with some clay Fill Material
2 _		28				2
- - -		12 14 14	2.5 to 5	24/12	0.0	Red brown fine sand with some clay Fill Material
4 _		7 12	5		. <u>.</u> .	4 <u>-</u>
6 <u> </u>		21 28	to 7.5	24/12	0.0	Red brown fine sand with some clay Fill Material and concrete fragments
- -		12 26 28	7.5 to	<b>24</b> /0	0.0	Red brown sandy clay with some rock Native Soil
8		21	10			fragments 8Refusal
- -		Refusal	Switch to Air			
10_			Rotary			10
- -						
12_						12_
-						-
14	<del></del> .					Sandstone and Shale apprx. 15 ft Bedrock
-						
16 -						16
-						
18						18 <del> </del>

Well/Boring No. <u>MW-1</u> Geologist/Inspector on site: <u>Steven Sobstyl</u> (<u>CA Rich Consultants</u>) Page 2 of <u>2</u> Project: Kodalux Facility Location 16-31 Rt 20B Fair Lawn, N.J. Date Drilled 8-2-90 Depth: 45 ft. Drilling Co. William Stothoff Co. Inc. Drilling Method: Hollow Stem Auger/Air Org. Vapor Instrmts. HNU Strata Remarks Smpl. Adv/Rec Org.Vap Sample Description Depth Sample Blows per 6" Change Intvl. (inch) (ppm) (ft) No. Bedrock 20 Sandstone and Shale 20\_ Air Rotary 25 25\_ Oil sheen on drilling \_30\_ water @ 29 ft. Water table € 33 ft. 35\_ 40\_ End Boring 45 feet

# WELL CONSTRUCTION SUMMARY

CA RICH CONSULTANTS, INC.

			DRILLING SUMMARY		, <u>, , , , , , , , , , , , , , , , , , </u>			
;	NO SCALE		Drilling Company: William Stothoff Company, Inc. Driller: Charles M.					
			Drill Rig Make/Mod	el: <u>Schramm Rota</u>	drill			
		-Protective ·	Borehole Diameter:	10 inches				
•		Casing	Drilling Fluid:	lone				
<b>-</b>			Total Depth: 45	eet below grade	Depth to Water:	33 feet		
			Supervisory Geolog	ists: <u>Steven Sobstyl (C</u>	A Rich Consultants, In	uc.)		
out			WELL DESIGN	<u></u>				
				Stainless Steel				
out—		—Riser		None/Bedrock Well				
## ## ## ## ## ## ## ## ## ## ## ## ##			Slot Size:		Setting:			
			Filter Material:_		Setting:			
			Seals Material:		Setting:			
100 cm		20 ft.		****				
	12	Bedrock	Surface Casing Ma	erial: <u>Iron</u> Setti	ing: Flush			
	+1	Open Hole	) ***					
=			TIME LOG	Started	<u></u>	Completed		
			Drilling:	8-2-90		3-2-90		
			Installation:	B-2-90		3-2-90		
			Development:	B-2-90	6	3-2-90		
	=							
			WELL DEVELOPMENT					
			Method: As					
				ter: Approx. 33 f				
11		_ 45 ft.	Fumping Depth to b	later:  1 Gallon per Minute				

BASEMENT FLOOR DRAIN
SUBSURFACE INVESTIGATION
Kodalux Processing Laboratory
Fair Lawn, New Jersey

July 1990

# Prepared for:

Eastman Kodak Company
Environmental Technical Services
Health and Environmental Laboratory
901 Elmgrove Road
Bulding 9 West
Rochester, New York 14653-5710

Prepared by:

CA Rich Consultants, Inc. 404 Glen Cove Avenue Sea Cliff, New York 11579

# BASEMENT FLOOR DRAIN SUBSURFACE INVESTIGATION Kodalux Processing Laboratory Fair Lawn, New Jersey

#### 1.0 INTRODUCTION

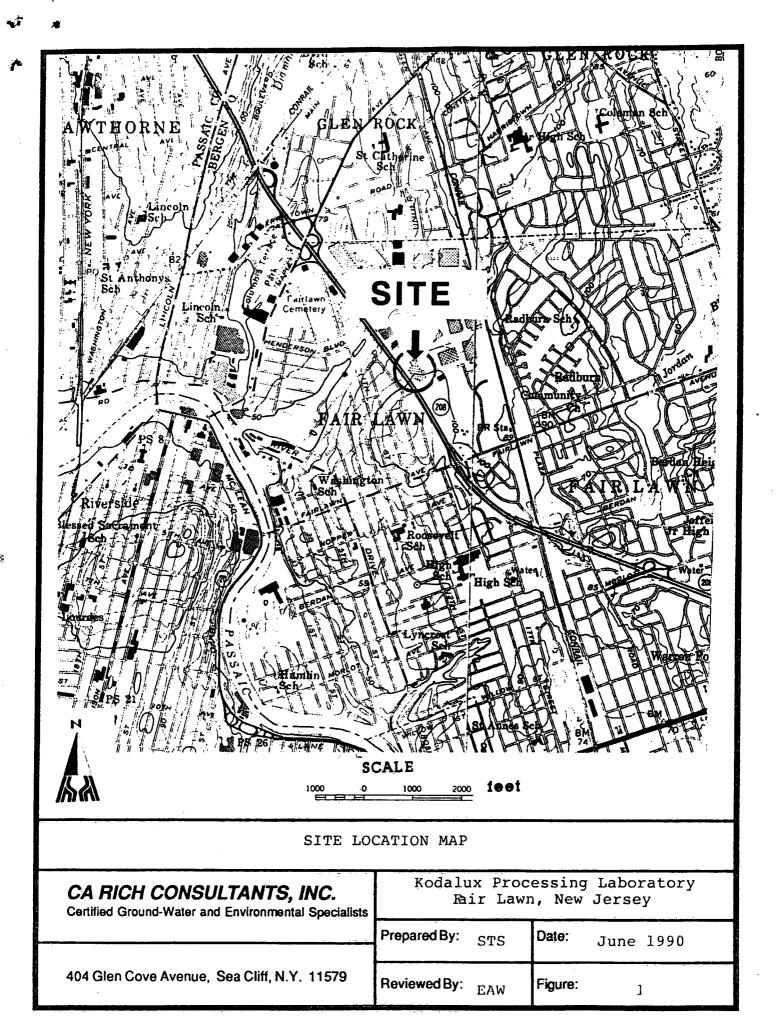
This summary report of field and analytical activities documents the excavation of two basement floor drains, the sampling of adjacent soil, and the pressure-testing of a floor drain system at the Kodalux Processing Laboratory in Fair Lawn, New Jersey (Figure 1). This work was performed in accordance with our proposals dated May 9 and 30, 1990 and authorized by Kodak's Purchase Order No. LR-KD7-32571W.

Corrosion of the drain system was discovered at both of the drains that were excavated, as well as the point where the drain system enters the floor sump (see Figure 2). Laboratory analysis of the soils beneath the drains indicate contamination of both inorganic and organic constituents. Drain rehabilitation and a groundwater monitoring program are recommended for this facility.

CA Rich Consultants, Inc. (CA RICH) provided oversight and project coordination of the excavation activities, including the collection of confirmatory soil samples. The excavation was performed by State-registered Direct Environmental, Inc., while analysis of soil samples collected from the excavation were performed by State-certified Nytest Environmental, Inc. Pressure-testing services were provided by Tank Automation. All excavated materials are temporarily stored on-site, pending analytical results for proper disposal.

The basement floor drain program began on May 30 and was completed on June 4, 1990. The program included the following:

- o Excavation of two basement floor drains.
- o Removal of corroded sections of pipe.
- o Temporary plugging of adjacent drain pipe.
- o Sampling of the soil adjacent to and beneath the drains.
- o Pressure-testing of the basement floor drain system.



**EXPLANATION** Approximate Scale (in feet) Excavation Sample Location Floor Drain Known Corroded Pipe Sump Pit with Pump BFD-1 Floor Drain #1 Concrete Wall BFD-2 Floor Drain #2 Sump

SCHEMATIC REPRESENTATION OF BASEMENT FLOOR DRAIN SYSTEM & SAMPLING LOCATIONS

CA RICH CONSULTANTS, INC. Certified Ground-Water and Environmental Specialists	KODALUX PROCESSING LABORATORY FAIR LAWN, NJ				
	Prepared By:	STS	Date:	JULY 1990	
404 Glen Cove Avenue, Sea Cliff, N.Y. 11579	Reviewed By:	EAW	Figure:	2	

#### 2.0 FIELD ACTIVITIES

# 2.1 Site Preparation

Site preparation consisted of reviewing blueprints of the floor drain system in the portion of the basement used to recover silver and to pretreat the photochemical waste stream, before discharging the liquid to the municipal, Publicly Operated Treatment Works (POTW). A drum staging area was set aside in a fenced, unused corner of the parking lot, so that 55 gallon drums of excavated soil could be temporarily staged.

## 2.2 Excavation of Drains

Two of the six floor drains, connected to a main underground pipe servicing the south-west portion of the basement, were excavated. An opening approximately five (5) feet by five (5) feet was excavated through the concrete floor around both drains. The concrete was removed and placed into 55 gallon drums. The excavation was continued by manually digging down and around the floor drain. The excavated soil was also placed into 55 gallon drums.

In each case, as much as six (6) inches of the cast iron trap had been corroded away. The soil adjacent to the pipes was found to be moist and discolored. When each trap was cleared of the surrounding soil, the trap was cut off and the drain pipe stub was sealed tightly with an expandable plug. This prevented backflow of liquid to the excavation from the drain system.

Each excavation was deepened in an attempt to remove the moist and discolored soil, prior to digging a sample pit. The total depth of each excavation was approximately three (3) feet below the concrete floor. As the excavations are adjacent to several large process tanks, the digging was limited to this depth.

## 2.3 Collection of Confirmatory Samples

One (1) composite soil sample was collected from the bottom and side walls of each excavation using a decontaminated, stainless steel sampling spoon. These sample locations are designated BFD-1 and BFD-2. The two samples were collected to determine the quality of the soil below the corroded drains. Each sample was placed into a clean, laboratory-issued glass jar and submitted to Nytest Environmental, Inc., to be analyzed for the following parameters: volatile organics, silver, total chromium, cyanide, hydroquinone, formaldehyde, and pH.

Additionally, one (1) composite sample of the excavated soil from each excavation was collected for waste characterization analyses. These analytical parameters include: ignitability, corrosivity, reactivity, EP Toxicity metals, cyanide, volatile organics, formaldehyde, and pH.

# 2.4 Temporary Securing of Excavations

As this portion of the basement and the floor drains are in an area of frequent traffic, the two floor drain excavations were temporarily secured. In addition to the plugs in the drain pipe, one excavation was lined with plastic and the other was covered with plastic, to prevent liquids on the floor from reaching the soil exposed in the excavations. Also, a 3/4-inch plywood cover was placed over the less-traveled area of the basement and 1/2-inch steel plate cover was placed over the more frequently traveled area, where a fork-lift truck is used to refill adjacent tanks.

# 2.5 Pressure-Testing of Drain Line

In order to determine the extent of corrosion in the floor drain system, a pressure-test was performed on the drain line. Previously, CA RICH had used building plans to locate all ten (10) of the openings in the drain system. The pressure-test, conducted by Tank Automation, consisted of attempting to seal all of the openings with 4-inch, expansion-type sewer plugs, to create a "closed" pipe system. Water would then be allowed to fill the system, in preparation for pressurizing the line.

However, repeated attempts to seal the line at the sump revealed that the drain system could not hold water. Apparently, corrosion of the 4-inch main leading to the sump allowed water to exit the pipe, flow through the soil (around the plug), re-enter the pipe and flow into the sump.

### 3.0 SAMPLE ANALYSIS

The results of the samples collected from the excavations are summarized in Table 1.

# 3.1 Floor Drain #1 (Sample I.D. BFD1-CS-1)

The following inorganic constituents were detected in soil sample BFD-1: silver at 41.6 ppm; cyanide at 0.13 ppm; chromium at 7.0 ppm; formaldehyde at 28.2 ppm; and hydroquinone at 936 ppm.

TABLE 1

SUMMARY OF ANALYTICAL DATA FOR SOIL SAMPLES
Basement Floor Drain Investigation
Kodalux Processing Laboratory, Fair Lawn, N.J.

	Excava. Composite Samples		Waste Ch	1	
PARAMETER	BFD1-CS-1	BFD2-CS-1	BFD1-WC-1	BFD2-WC-1	TRIP BLANK
Voiatile Organics (PPB)					
Methylene Chloride	2.0 J	ND	2.0	3.0	ND
2-Propanone	27	43.0	28.0	37.0	ND
EP Toxicity (PPM)					
Arsenic	N/A	N/A	<0.5	<0.5	N/A
Barium	N/A	N/A	<10.0	<10.0	N/A
Cadmium	N/A	N/A	<0.1	<0.1	N/A
Chromium	N/A	N/A	<0.5	<0.5	N/A
Lead	N/A	N/A	<0.5	<0.5	N/A
Mercury	N/A	N/A	<0.02	<0.02	N/A
Selenium	N/A	N/A	<0.1	<0.1	N/A
Silver	N/A	N/A	<0.5	<0.5	N/A
Others (PPM)			İ	1	
Silver	41.6	<5.0	N/A	N/A	N/A
Chromium	7.0	9.5	N/A	N/A	N/A
Cyanide	0.13	12.20	0.75	0.445	N/A
Hydroquinone	936.0	69.4	N/A	N/A	N/A
Formaldehyde	28.2	35.0	57.6	84.9	N/A
Hazardous Characteristics					
ρΗ	N/A	N/A	7.2	7.3	N/A
Corrosivity (inches/year)	N/A	N/A	<0.01	<0.01	N/A
Ignitability (° F)	N/A	N/A	>212°	>212°	N/A
Reactivity to Cyanide (PPM)	N/A	N/A	<1.0	<1.0	N/A
Reactivity to Sulfide (PPM)	N/A	N/A	<1.0	<1.0	N/A

ND - Not Detected.

N/A - Not Analyzed.

J - Indicates an estimated value (see original lab report).

Two volatile organic compounds were detected in this sample. Methylene chloride, at a concentration of 2.0 parts per billion (ppb) and 2-propanone (acetone), at a concentration of 27.0 ppb. As these are both common laboratory cleaning agents, the origin of these detections is believed to be from the laboratory.

### 3.2 Floor Drain #2 (Sample I.D. BFD2-CS-1)

The following inorganic constituents were detected in soil sample BFD-2: cyanide at 12.2 ppm; chromium at 9.5 ppm; formaldehyde at 35.0 ppm; hydroquinone at 69.4 ppm.

Acetone was also detected in floor drain #2 at 43 ppb, but is believed to be an artifact of the laboratory.

#### 4.0 DISPOSAL OF HAZARDOUS MATERIALS

#### 4.1 Concrete and Soil from Excavation

At the present time, the material excavated from the floor drains is contained in DOT 17H 55 gallon drums, which are staged in a fenced, unused corner of the parking lot at the Kodalux facility. Analytical results for the drummed soil are summarized in Table 1.

# 4.2 Excavated Soil from Floor Drain #1 (Sample I.D. BFD1-WC-1)

The pH of this soil is 7.21 and the sample did not exhibit a flash at temperatures exceeding 212 degrees Fahrenheit. The soil sample was not corrosive and did not react with cyanide or sulfide. Formaldehyde was detected at a concentration of 57.6 ppm and cyanide was detected at 0.75 ppm. Results of the EP toxicity metal extraction procedure revealed concentrations less than the maximum allowable levels.

Methylene chloride and acetone were also detected in this sample, but are believed to be an artifact of the laboratory.

# 4.3 Excavated Soil from Floor Drain #2 (Sample I.D. BFD2-WC-1)

The pH of soil is 7.32 and the sample did not exhibit a flash at temperatures exceeding 212 degrees Fahrenheit. The soil sample was not corrosive and did not react with cyanide or sulfide. Formaldehyde was detected at a concentration of 84.9 ppm and cyanide was detected at 0.445 ppm. The results of the EP Toxicity metal extraction procedure revealed concentrations less than the maximum allowable levels.

Methylene chloride and acetone were also detected in this sample, but are believed to be an artifact of the laboratory.

#### 5.0 CONCLUSIONS

- 1. The present floor drain system has sustained corrosion, as evidenced by the two excavated floor drains and the results of the pressure-test.
- 2. Soil samples collected and analyzed for hazardous waste characterization (BFD1-WC-1 and BFD2-WC-1) exhibited trace amounts of methylene chloride and acetone which most probably are laboratory artifacts. These observed concentrations, however, are below the standards set by the Environmental Protection Agency (EPA) Document CCWG-40, Land Ban Thresholds. The sample results of the EP Toxicity metals analysis were well below the maximum allowable concentrations established by the EPA. Based on the waste characterization parameters analyzed for these drums, the soils are not classified as hazardous.
- 3. NJDEP case number 90 06 15 1528 has already been opened for the possible releases associated with a former dry well. NJDEP representatives were advised of the basement floor drain situation during a site visit on July 25, 1990 for case number 90 06 15 1528.

# APPENDIX A PHOTOGRAPHIC LOG



Overview of Basement Floor Drain #1



Overview of Basement Floor Drain #2



Basement Floor Drain #1 Hub, Showing Corroded and Missing Trap Area

# APPENDIX B ANALYTICAL DATA

Project No.: 9016835 Log in No.: 4885,4886 P.O. No.: PENDING Date: June 29, 1990

ANALYTICAL DATA REPORT PACKAGE FOR

C.A. Rich Consultants

404 Glen Cove Avenue

Sea Cliff, NY 11579

ATTN:

Eric Weinstock

REF:

Kodalux-Fairlawn, NJ

SAMPLE	LABORATORY	SAMPLE
DENTIFICATION	NUMBER	MATRIX
BFD2-WC-	4885001	SOIL
BFD2-CS-1	4885002	SOIL
BFD1-CS-1	4886001	SOIL
BFD1-WC-1	4886002	SOIL
TB 5/30	4886003	WATER
	DENTIFICATION  BFD2-WC-   -BFD2W001  BFD2-CS-1  BFD1-CS-1  BFD1-WC-1	DENTIFICATION NUMBER  B FD 2 - WC -    -BFD 2 + WC -    -BFD 2 + WC -    -BFD 2 + WC -    -BFD 3 + WC -    -BFD 1 - WC -    -

REPORT PREPARED BY: PARAG K. SHAH, Ph. D. ORGANIC LAB. MANAGER

DOUGLAS SHEELEY DISHAY LABORATORY DIRECTOR

mo

WE CERTIFY THAT THIS REPORT IS A TRUE REPORT OF RESULTS OBTAINED FROM OUR TESTS OF THIS MATERIAL.

RESPECTFULLY SUBMITTED, NYTEST ENVIRONMENTAL INC.

REMO GIGANTE EXECUTIVE V.P.

Report on sample(s) turnished by client applies to sample(s). Report on sample(s) obtained by us applies only to lot sampled. Information contained herein is not to be used for reproduction except by special permission. Sample(s) will be retained for thirty days maximum after date of report unless specifically requested otherwise by client. In the event that there are portions or parts of sample(s) remaining after Nytest has completed the required tests. Nytest shall have the option of returning such sample(s) to the client at the client's expense.

### Table of Contents

		Log In No: 4	<b>.885, 488</b> 6	Page	,
1.	Sample Analysis Request Form		· • • •	NA	
11.	Chain of Custody			1 -	2
ш.	Laboratory Deliverable Checklist			3	
ıv.	Laboratory Chronicle		• • • • ·	4	
v.	Non Conformance Summary (Case Narrative)			5	
VI.	Methodology Summary		• • • •	6 -	8
VII.	Data Reporting Qualifiers	· • • • •		9	
VIII.	Sample Results			10 -	23
IX.	Quality Assurance Summary		• • • • • •	24 -	28

				C	HAIN C	OF C	USTOD	Y RECORD			Page of	
SHIP TO:	60 S	eaview E	Blvd.	<b>**</b>		RE	PORT TO	Client Name	CUE	RICH SCON C	((5'>9	· ·
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## CHAIN OF CUSTODY RECORD

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		DEBORT TO	: Client Name.	( 'Y' K	UP
_	Nytest Environmental Inc.	REPORT TO	Address	904 610	en Cou
	60 Seaview Blvd.		Addiess	SONCLIE	re, n
	Port Washington, NY 11050		Phone	516-674	1 - 368
	(516) 625-5500		Attn	exic we	Orsno
	A ***		~!!!!. <u></u>		

Project No.	Proj	ect Nar	ne KODALUX	-FAIR	LAUN)	Date Shipped 6/1	Carrier Fen 6xP
Sampler: Signature	ا حبر ع	/30	Analytical Pr	otocol		Air Bill No.	Coler No.
Sample //	Date/ Sam		Sample Descript	ion	No. Of Con- tainers	ANALYSIS REQ	UESTED
ECHICA	Tita	PA	STATE		50	VAR CHANCES	Day Clamer, Trope
BFDJ-CS-I	5/30	F/4	SOIL		4	EVOA SILVER, TOTAL C	KROMIUM CYANIL
						MYBROQUINONE, FORM	ALDENTOE PH
BFD1-WC-i	5/30	PM	SOIL		5	FUOA, WASTE CHARA	
						( IGNITA BILITY, CORPOS	WITH ROACTIVITY
	2					er tox/city mothers,	
		' <u>-</u>				ORGANICS, FORMAL DE	MYDE PH.
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Print Name					Por	Pier Des	(0/2//-

Client Retains Yellow Copy Only

### Laboratory Deliverable Check List

		Complete
Ι.	Cover Page, Format, and Laboratory Certification (Include Cross Reference Table of Field I.D. # and Laboratory I.D. #)	<u></u>
II.	Chain of Custody	
III.	Summary Sheets Listing Analytical Results Including QA Data Information	
IV.	Laboratory Chronicle and Methodology Summary including Sampling Holding Time Check	
٧.	Initial Calibration and Continuing Calibration (Time & Date Summary)	
VI.	Tune Summary (MS)	
VII.	Blanks (Method, Field, Trip)	· <u> </u>
VIII.	Surrogate Recovery Summary	
IX.	Non-Conformance Summary	_/
<u>\Q</u>	Johnston Manager	7/579 Date

Check if

# nytest environmental m

Laboratory Chronicle

Log In No:4885,4886

Client Name: C.	A. Rich Consultants
	6/2/90, 6/5/90 per chain of custody
Organics Extrac	
	1. Acids
	2. Base/Neutrals
	3. Pesticides/PCBs
	4. Dioxin
Analysis:	6/8/90
	1. Volatiles
	2. Acids
	3. Base/Neutrals
	4. Pesticides/PCBs  5. Dioxin
	Section Supervisor O Sheeley Review & Approval
norganics:	6/27/90, 6/29/90
	1. Metals6/14/90
	2. Cyanides
ther Analysis:	
	•
	Section Supervisor () Charles & Approval () Charles
	Quality Control Supervisor & Shory  Review & Approval

00004

# NON-CONFORMANCE SUMMARY (Case Narrative)

Log In No: 4885, 4886

Samples were analyzed as per required protocols, no problems were encountered.

#### METHODOLOGY SUMMARY

AQUEOUS SAMPLE PREPARATION	REFERENCE 1	REFERENCE 2
BNA, Pesticides/PCB's Extraction		3510
AA/ICP Sample Preparation	200.7	
Furnace Sample Preparation	200.0	
Mercury Sample Preparation	245.1	•
Hexavalent Chromium Sample Preparation	218.5	
nead various series		,
NON-AQUEOUS EXTRACTIONS	·	
SOIL AND SEDIMENT SAMPLES:		
SOIL AND BEDILIDAY BILLING		2550
BNA, Pesticides/PCB's Extraction	2252	3550
AA/ICP Sample Preparation	3050	
Furnace Sample Preparation	3050	
Mercury Sample Preparation	7471	
TO THE PARTY OF THE CAMPIEC.		•
SLUDGE/PETROLEUM BASED SAMPLES:		
AA/ICP Sample Preparation		3050
Furnace Sample Preparation		3020/3030/3050
Mercury Sample Preparation		7471
ICP (INDUCTIVELY COUPLED PLASMA):		
	200.7	6010
Aluminum	200.7	6010
Antimony	200.7	6010
Barium	200.7	6010
Beryllium	200.7	6010
Cadmium	200.7	6010
Calcium	200.7	6010
Chromium Cobalt	200.7	6010
Copper	200.7	6.010
Iron	200.7	6010
Lead	200.7	6010
Magnesium	200.7	6010
Manganese	200.7	6010
Molybdenum	200.7	6010 6010
Nickel	200.7	6010
Potassium	200.7	6010
Silver	200.7 200.7	6010
Sodium		6010
Tin	200.7	6010
Titanium	200.7	6010
Vanadium	200.7 200.7	6010
Zinc	200.7	0010

#### METHODOLOGY SUMMARY

FURNACE AA:	REFERENCE 1	REFERENCE 2	REFERENCE 3
- 1 *	204.1	7041	
Antimony Arsenic	206.2	7060	
Lead	239.2	7421	
Selenium	270.2	7740	
Thallium	279.2	7841	
Tin	282.2		
Vanadium	286.2	7911	
Mercury	245.1	7470	·
AQUEOUS METHODOLOGIES:			
Organochlorine Pesticides and PCB'	S ·		
by Gas Chromatography			608
Herbicides by Gas Chromatography			362
Purgeable Organics by GC/MS	•		624
Base/Neutral, Acids by GC/MS			625
2,3,7,8-TCDD by GC/MS			613/625
NON-AQUEOUS METHODOLOGIES:			
Gas Chromatography/Mass Spectromet	ry:		
Purgeable Organics		8240	
Base/Neutral and Acid Extractables		8270	
		•	
Organochlorine Pesticides and PCB'	<b>s</b> .	8080	
by Gas Chromatography		8080	
/			
MISCELLANEOUS ANALYSIS:			
Extraction Procedure Toxicity		1310	
Ignitability		1010	
Corrosivity		1110	
Reactivity		Chapter 8.3	3
-	_		
Toxicity Characteristic Leaching P	rocedure	/D	Ë١
(TCLP)		(Reference	2)

# nytest environmental inc

### METHODOLOGY SUMMARY

ADDITIONAL INORGANIC PARAMETERS	REFERENCE 1	REFERENCE 2
	320.1	
Bromide	110.2	
Color	120.1	
Conductance		9050
Conductance	140.1	
Odor	150.1	
рН	150.1	9040
рН	160.2	•
TDS	160.2	
TSS	160.2	,
TS	130.1	
Hardness	170.1	
Temperature		
Turbidity	180.1	
Acidity	305.1	
Alkalinity	310.1	
Ammonia	350.2/350.3	
Chloride	325.3	9252
Chloride		9232
Residual Chlorine	330.2	
COD	410.3/405.1	
Cyanide	335.3	,
Oil and Grease	413.1/413.2	0.07.0
Oil and Grease		9070
Fluoride	340.2	
TKN	351.2	
NO2/NO3	353.2	
D.O.	360.2	
Petroleum Hydrocarbons (Reference 4)	418.1	
Phenol	420.2	
Phosphorous	365.1	•
Silica	370.1	
Sulfate #	375.2/375.4	
Sulfide	376.1	
Surfactants	425.1	
TOC	415.1	
TOC		

### REFERENCES:

- (1) USEPA-600/4-79-002, Methods for Chemical Analysis of Water and Waste
- (2) USEPA SW 846, Test Methods for Evaluating Solid Waste, Third Edition
- (3) Federal Register 40 CFR Part 136, Vol. 49, No. 209 Test Parameters for the Analysis of Pollutants
- (4) as modified by NJDEP-BISE (for non-aqueous samples)
- (5) Federal Register Vol. 51, No. 216 Friday, 11/7/86, pp. 40643-40652

### DATA REPORTING QUALIFIERS

- U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g. 10U) based on necessary concentration dilution actions. (This is not necessarily the instrument detection limit.) The footnote should read U-Compound was analyzed for but not detected. The number is the minimum attainable detected limit for the sample.
- J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicates the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g.: If limit of detection is 10 ug/l and a concentration of 3 ug/l is calculated, report as 3J.)
- B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.
- T This flag indentifies all targeted compounds that were found above the method detection limits.
- NA This flag indicates that the data is not applicable

Note: Data on soil samples expressed on a dry weight basis.

### REPORT OF ANALYSIS

Log In #:4886

We find as follows:

Parameter(s)		Sample Identification		
	BFD1-CS-1 (4886001)	BFD1-WC-1 (4886002)	METHOD BLANK	
pH Ignitability, F PM Corrosivity, in./year Reactivity to Cyanide, ppm Reactivity to Sulfide, ppm	6.14 >212 <0.01 <1 <1	7.21 >212 <0.01 <1 <1	AN AN AN NA	
Results in ppm:				
Formaldehyde	28.2	57.6	<0.1	
Total Cyanide	0.130	0.755	<0.02	
Hydroquinone	936	-	<1	
Chromium	7.0		<5.0	
Silver	41.6	<del></del>	<5.0	

LOG IN NO.: 4885

Samole	Identification	and Results	1

EAW

Samole No: 8F02 HOO! BFD 2 - W ( - 1

Lab Sample ID No.: 4885001

Results	Max. Allowable Levels	Found
cH @ 20 C	2 - 12.5	7.32
Ignitability, F PM	140	>212
Corrosivity, inches/year	0.250	<0.01
Reactivity to Cyanide, PPM	-	<1
Reactivity to Sulfide, PPM	•	<1
Cyanide, PPM	•	0.445
Formaldehyde, PPM	-	84.9

#### E P Toxicity (PPM)

Arsenic	5.0	< .5
Barium	100.0	<10.0
Cadmium	1.0	<.1
Chronium	5.0	< .5
Lead	5.0	< .5
Mercury	) <sup>1</sup> 0.2	< .02
Selenium	1.0	<.1
Silver	5.0	< .5

ND = None Detected < = Less than

VOLATILE ORGANICS ANALYSIS DATA SHEET

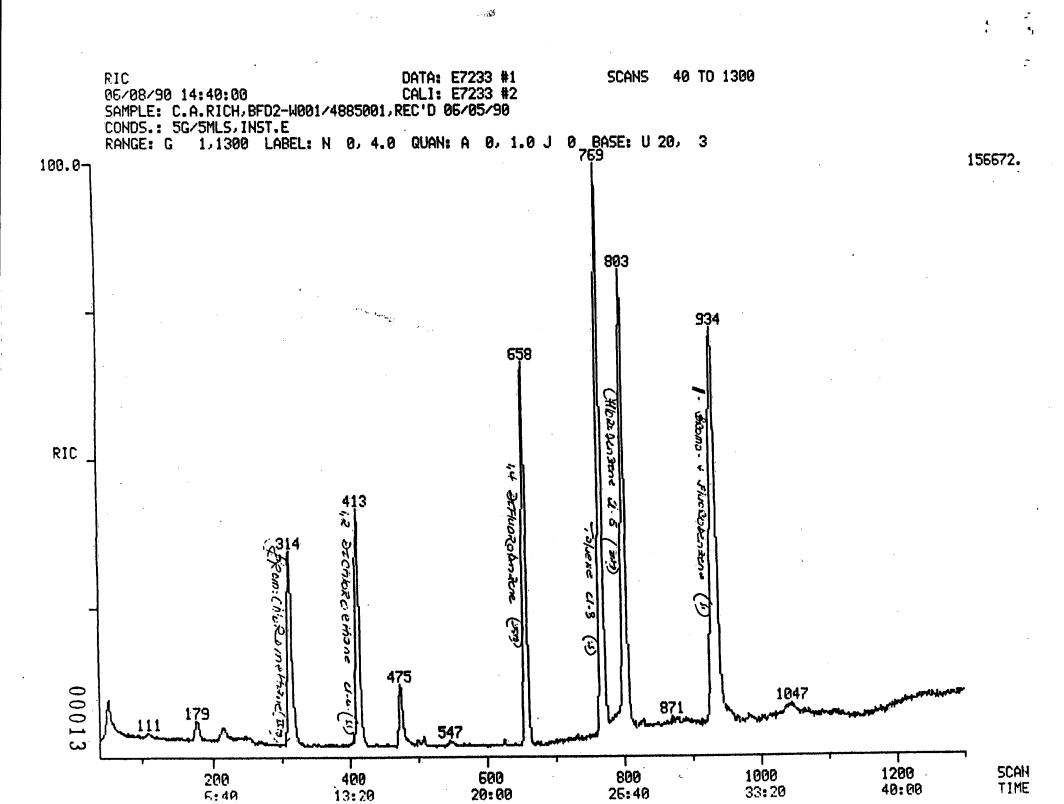
CAW DFD2-WC-

SAMPLE MATRIX: SOIL CONC. LEVEL: LOW ANALYSIS DATE: 6/8/90 SAMPLE ID: BF02-W001
LAB ID: 4885001
DIL FACTOR: 1.00

\$ MOISTURE: 12

UG/KG

~~~ *	CAS Number	VOLATILE COMPOUNDS	UG/NG (DRY BASIS)
CMPD #	UND INDICES		
1	74-87-3	Chiloromethane	10.0 U.
2	74-83-9	Bromomethane	1 10.0 U.
3	75-01-4	Vinyl Chloride	10.0 U.
4	75-00-3	Chloroethane	10.0 U.
5	75-09-2	Methylene Chloride	3.0 J.
6	67-64-1	1 2-Propanone	37.0 T.
7	75-15-0	! Carbon disulfide	6.0 U.
8	75-35-4	1,1-Dichloroethene	6.0 U.
9	75-34-3	1,1-Dichloroethane	6.0 U.
10	540 <del>-59-</del> 0	1,2-Dichloroethene (total)	6.0 U.
11	67-66-3	! Chloroform	6.0 U.
12	107-06-2	1.2-Dichloroethane	6.0 U.
13	78-93-3	2-Butanone	10.0 U.
14	71-55-6	1,1,1-Trichloroethane	6.0 U.
15	56-23-5	Carbon Tetrachloride	6.0 U.
16	108-05-4	Viny? Acetate	10.0 U.
17	75-27-4	Bromodichloromethane	6.0 U.
	78-87-5	1.2-Dichloropropane	6.0 U.
19	10061-01-5	l cis-1,3-Dichloropropene	6.0 U.
20	79-01-6	Trichloroethene	6.0 U.
	124-48-1	Dibranachloramethane	6.0 U.
22	79-00-5	1.1,2-Trichloroethane	6.0 U.
23	71-43-2	Benzene	6.0 U.
24	10061-02-6	Î Trans-1,3-Dichloroorooene	6.0 U.
25	75-25-2	Bransform	6.0 U.
26	108-10-1	4-Methy7-2-Pentanone	1 10.0 U. 1
27	591 <del>-78-6</del>	2-Hexanone	10.0 Û.
28	127-18-4	! Tetrachloroethene	6.0 U.
29	79-34-5	1,1,2.2-Tetrachloroethane	1 6.0 U. I
30	108-88-3	l Toluene	i 6.0 U.
31	108-90-7	Chilorobenzene	6.0 U.
32	100-41-4	{ Ethylbenzene	i 6.0 U. I
	100-42-5	Styrene	6.0 U.
	1330-20-7	Xylene (total)	6.0 U.
	107-02-8	Acrolein	110.0 U.
	107-13-1	Acrylonitrile	110.0 U.
37	•	2-Chloroethylvinylether	10.0 U.
38	•	Dichlorodif luoromethane	10.0 U.
39		Dichlorobenzene (total)	30.0 U.
40	•	1	i
41	:	1	1
41	! 		



### REPORT OF ANALYSIS

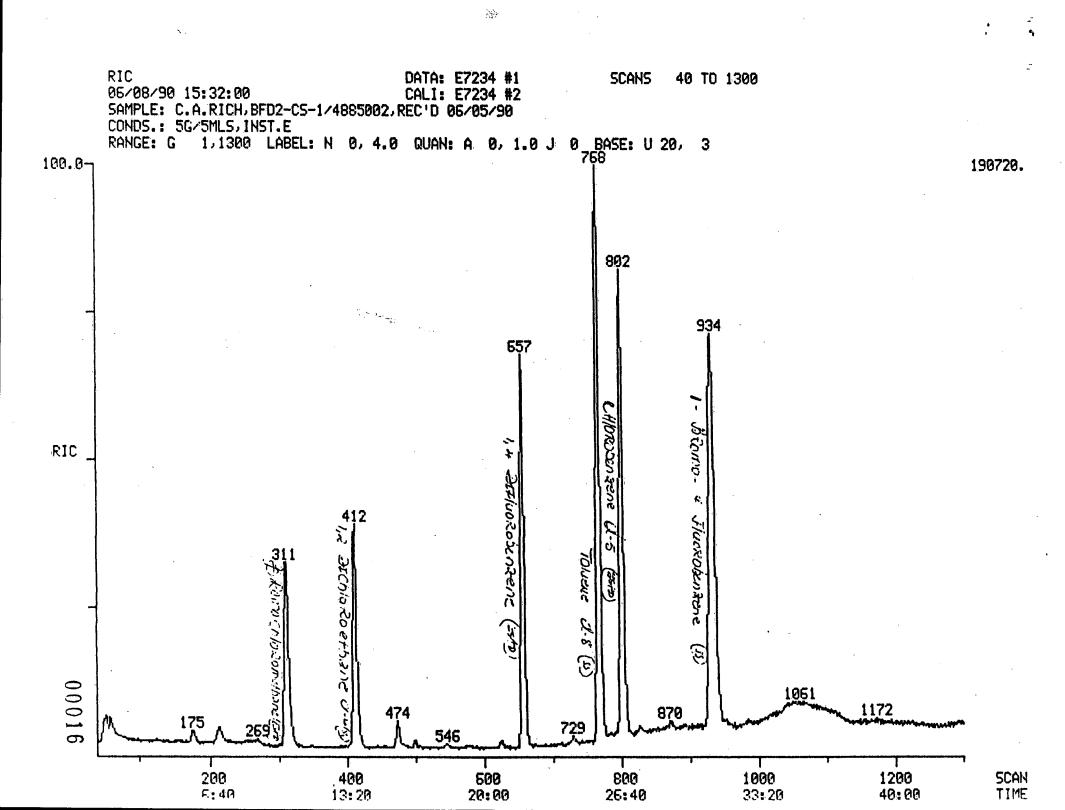
LOG IN NO .: 4885

We find as follows:

Parameter(s)	Sample Identification	
	BFD2-CS-1 (4885002)	METHOD BLANK
ρΗ	8.23	NA ·
RESULTS IN PPM:		
CYANIDE CHROMIUM FORMALDEHYDE HYDROQUINONE SILVER	12.2 9.5 95.0 69.4 <5.0	<0.02 <5.0 <0.1 NA <5.0

## VOLATILE ORGANICS ANALYSIS DATA SHEET

	SAMPLE MATRIX:	SOIL	SAMPLE ID:	BF02-CS-1
	CONC. LEVEL:	LOW	LAB ID:	4885002
	ANALYSIS DATE:	6/8/90	DIL FACTOR:	1.00
			\$ MOISTURE:	10
			Ü	5/K6
CMPO #	CAS Number	VOLATILE COMPOUNDS	(i	ORY BASIS)
- 1 !	17 41 4	Chloromethane	Ţ	10.0 U. !
2		Bronomethane	!	10.0 U.
3 ]	75-01-4	Yinyl Chloride	Į	10.0 U. I
4		Chiloroethane		10.0 U.
5	75-09-2	Methylene Chloride	1	6.0 U.
6	67-64-1	2-Propanone	1	43.0 T.
7	75-15-0	Carbon disulfide	1	6.0 U.
8	75-35-4	1,1-Dichloroethene	ļ	6.0 U.
9	75-34-3	1.1-Dichloroethane		6.0 U. I
10	540-59-0	1,2-Dichloroethene (	total)	6.0 U.
11	67-66-3	Chloroform	1	6.0 U.
		1,2-Dichloroethane	1	6.0 U.
		2-Butanone	Ţ	10.0 U.
		1,1,1-Trichloroethan	e Î	6.0 U.
	56-23-5	Carbon Tetrachloride		6.0 U.
		Vinyl Acetate	1	10.0 U.
	75-27-4	Branodichloramethane	. 1	6.0 U. {
		1,2-Dichloropropane	1	6.0 U.
	10061-01-5	cis-1,3-Dichloroprop	ene	6.0 U.
		Trichloroethene	i	6.0 U.
	124-48-1	Dibronochloromethane		6.0 V.
	79-00-5	1,1,2-Trichlorcethan	ne l'	6.0 U.
		Benzene	Ì	6.0 U.
		Trans-1.3-Dichloroor	opene	6.0 U. 1
		Branoform	1	6.0 U. 🕴
	108-10-1	4-Methyl-2-Pentanone	• 1	10.0 U.
		2-Hexanche	1	10.0 U. {
		Tetrach loroethene	1	6.0 U.
		1,1,2,2-Tetrachloros	thane	6.0 U. 1
		Toluene	1	5.0 U. 1
31		Chilorobenzene	4	6,0 U.
	100-41-4	Ethy 1 benzene	1	6.0 U.
33		Styrene	!	6.0 U.
34		Xylene (total)		6.0 U.
35		Acrolein	i	110.0 U.
36		Acrylonitrile	i	110.0 U.
37		2-Chloroethylvinylet	ter I	10.0 U.
37 38	•	Dichlorodifluorameth		. 10.0 U.
		Dichlorobenzene (tot		30.0 U.
39		Under the Contract from		1
40			i	i
41	!		ı	· ·



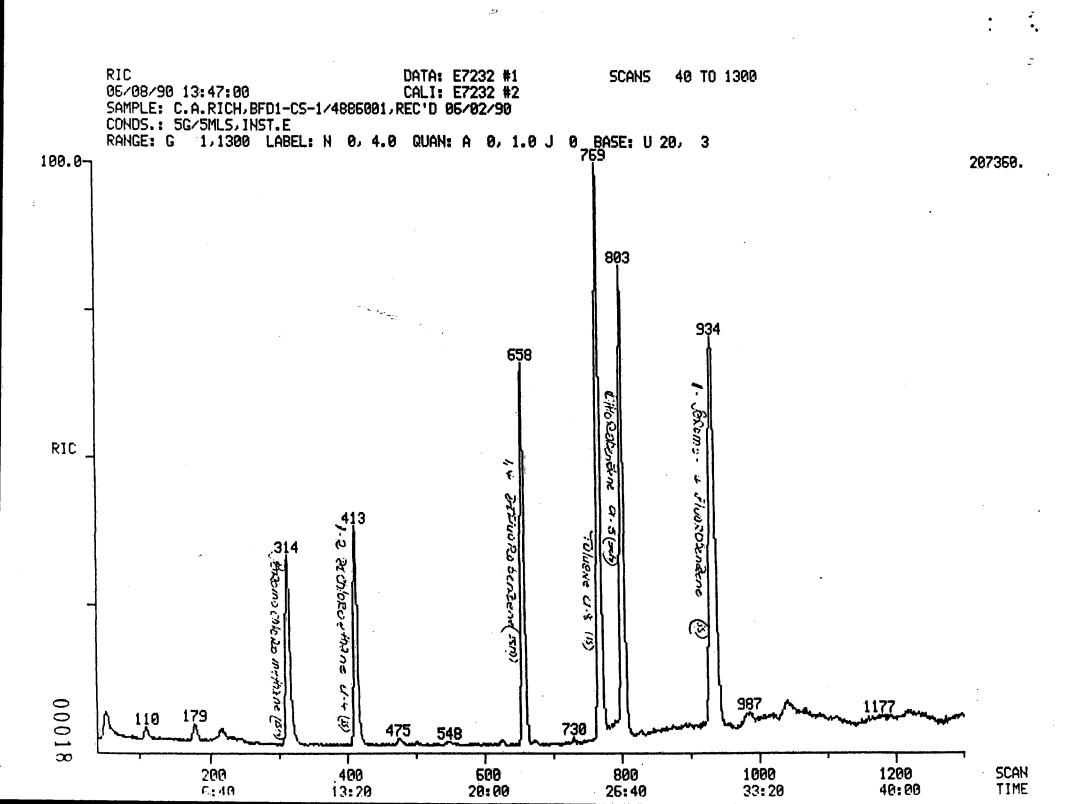
## VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE MATRIX: SOIL SAMPLE ID: BFD1-CS-1
CONC. LEVEL: LOW LAB ID: 4886001
ANALYSIS DATE: 6/8/90 DIL FACTOR: 1.00

% MOISTURE:

UG/KG	
-------	--

			UG/KG
CMPD #	CAS Number	VOLATILE COMPOUNDS	(DRY BASIS)
1 1	74-87-3	Chloromethane	10.0 Ű.
2	74-83-9	Bromomethane	10.0 U.
3	75-01-4	Vinyl Chloride	10.0 U.
4	75-00-3	Chloroethane	10.0 U.
5	75-09-2	Methylene Chloride	2.0 J.
6	67-64-1	2-Propanone	27.0 T.
7		Carbon disulfide	5.0 U.
8	75-35-4	1,1-Dichloroethene	5.0 U.
9	75-34-3	1,1-Dichloroethane	[ 5.0 U. ]
10	540-59-0	1,2-Dichloroethene (total)	5.0 U.
11	67-66-3	Chloroform	5.0 U.
12	107-06-2	1,2-DichLoroethane	5.0 U.
13	78-93-3	2-Butanone	10.0 U.
14	71-55-6	1,1,1-Trichloroethane	5.0 U.
15	56-23-5	Carbon Tetrachloride	5.0 U.
16	108-05-4	Vinyl Acetate	10.0 U.
17	75-27-4	Bromodichloromethane	5.0 U.
18	78-87-5	1,2-Dichloropropane	5.0 U.
19	10061-01-5	cis-1,3-Dichloropropene	5.0 U.
20	79-01-6	Trichloroethene	5.0 U.
21	124-48-1	Dibromochloromethane	5.0 U.
22	79-00-5	1,1,2-Trichloroethane	5.0 U.
23	71-43-2	Benzene	5.0 U.
24	10061-02-6	Trans-1,3-Dichloropropene	5.0 U.
25	75-25-2	Bromoform	5.0 U.
26	108-10-1	4-Methyl-2-Pentanone	10.0 U.
27	591-78-6	2-Hexanone	10.0 U.
28	127-18-4	Tetrachloroethene	5.0 U.
29	79-34-5	1,1,2,2-Tetrachloroethane	5.0 U.
30	108-88-3	Toluëne	5.0 U.
31	108-90-7	Chlorobenzene	5.0 U.
32	100-41-4	Ethylbenzene	5.0 U.
33	100-42-5	Styrene	5.0 U.
34	1330-20-7	Xylene (total)	5.0 U.
35	107-02-8	Acrolein	110.0 U.
36	107-13-1	Acrylonitrile	110.0 U.
37	110-75-8	2-Chloroethylvinylether	10.0 U.
38	1	Dichlorodifluoromethane	10.0 U.
39	1	Dichlorobenzene (total)	30.0 U.



Log In No: 4886

### Sample Identification and Results

Sample No: BFD1-WC-1 Lab Sample ID: 4886002

	max.	•
Results	Allowable Levels	Found
E P Toxicity (PPM)		
		_
Arsenic	5.0	< .5
Barium	100.0	<10.0
Cadmium	1.0	< .1
Chromium	5.0	< .5
	5.0	< .5
Lead	0.2	< .02
Mercury		< .1
Selenium	1.0	
Silver	5.0	< .5

ND = None Detected < = Less than

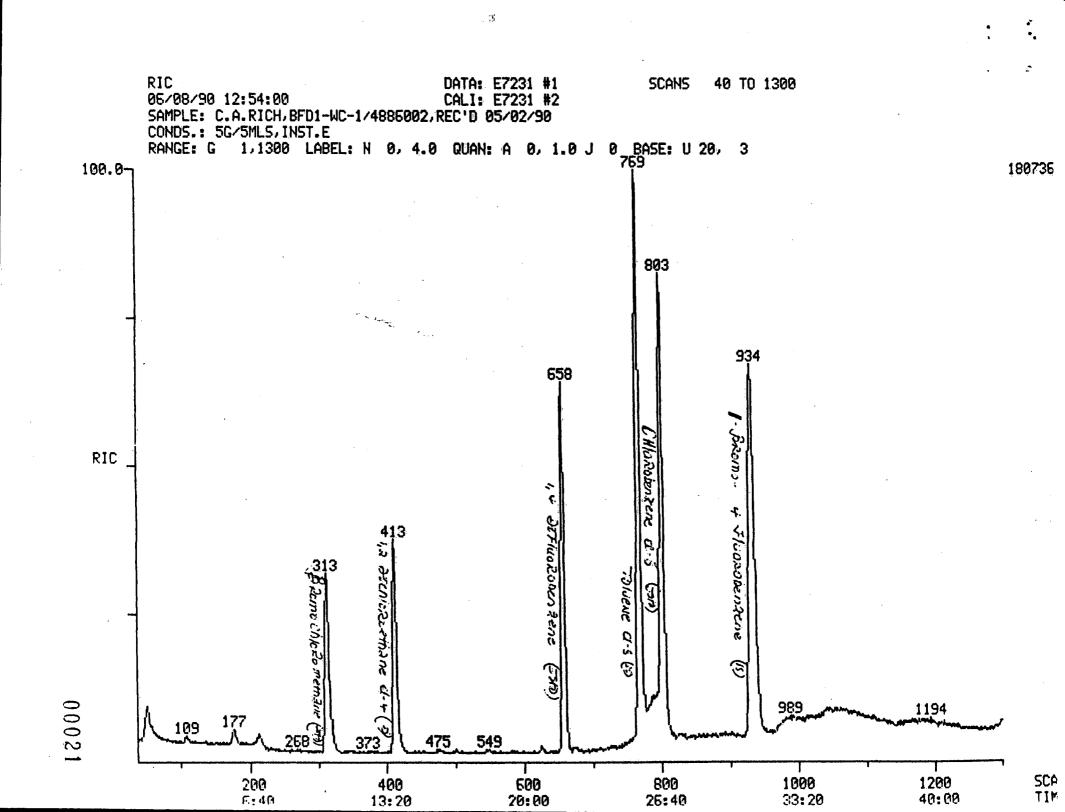
## VOLATILE ORGANICS ANALYSIS DATA SHEET

BFD1-WC-1 SAMPLE ID: SAMPLE MATRIX: SOIL 4886002 LAB ID: CONC. LEVEL: LOW 1.00 DIL FACTOR: ANALYSIS DATE: 6/8/90

% MOISTURE:

UG/KG

			UU/KU
CMPD #	CAS Number	VOLATILE COMPOUNDS	(DRY BASIS)
1 1	74-87-3	Chloromethane	10.0 U.
2		Bromomethane	10.0 0.
3 1		Vinyl Chloride	10.0 0.
4	75-00-3	Chloroethane	10.0 U.
5	75-09-2	Methylene Chloride	2.0 J. j
6	67-64-1	2-Propanone	28.0 T.
- 1	75-15-0	Carbon disulfide	5.0 U.
	75-35-4	1,1-Dichloroethene	J 5.0 U.
	75-34-3	1,1-Dichloroethane	5.0 U.
	540-59-0	1 1,2-Dichloroethene (total)	5.0 U.
	67-66-3	Chloroform	5.0 U.
12	107-06-2	1,2-Dichloroethame	5.0 U.
13	: 	2-Butanone	10.0 U.
	71-55-6	1,1,1-Trichloroethane	5.0 U.
	56-23-5	Carbon Tetrachloride	5.0 U.
	108-05-4	Vinyl Acetate	10.0 U.
	75-27-4	Bromodichloromethane	5.0 U.
18		1,2-Dichloropropane	5.0 U.
- 19	10061-01-5	cis-1,3-Dichloropropene	5.0 U.
	79-01-6	Trichloroethene	5.0 U.
21	1 124-48-1	Dibromochloromethane	5.0 U.
22	79-00-5	1,1,2-Trichloroethane	5.0 U.
23		Benzene	5.0 U.
	10061-02-6	Trans-1,3-Dichloropropene	5.0 U.
	75-25-2	Bromoform	5.0 U.
26	108-10-1	4-Methyl-2-Pentanone	10.0 U.
27	591-78-6	2-Hexanone	10.0 U.
28	1 127-18-4	Tetrachloroethene	5.0 U.
29	1 79-34-5	1,1,2,2-Tetrachloroethane	5.0 U.
30	1 108-88-3	Toluene	5.0 U.
31	1 108-90-7	Chlorobenzene	5.0 U.
32	1 100-41-4	Ethylbenzene	5.0 U.
33	1 100-42-5	Styrene	[ 5.0 U.
34	1 1330-20-7	Xylene (total)	5.0 U.
35	1 107-02-8	Acrolein	110.0 U.
36	107-13-1	Acrylonitrile	110.0 U.
30 37	1110-75-8	2-Chloroethylvinylether	10.0 U.
_	1 110-12-0	Dichlorodifluoromethane	10.0 U.
38	1	Dichlorobenzene (total)	30.0 U.
39		I with the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second secon	



## VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE MATRIX: WATER SAMPLE ID: TB 5/30

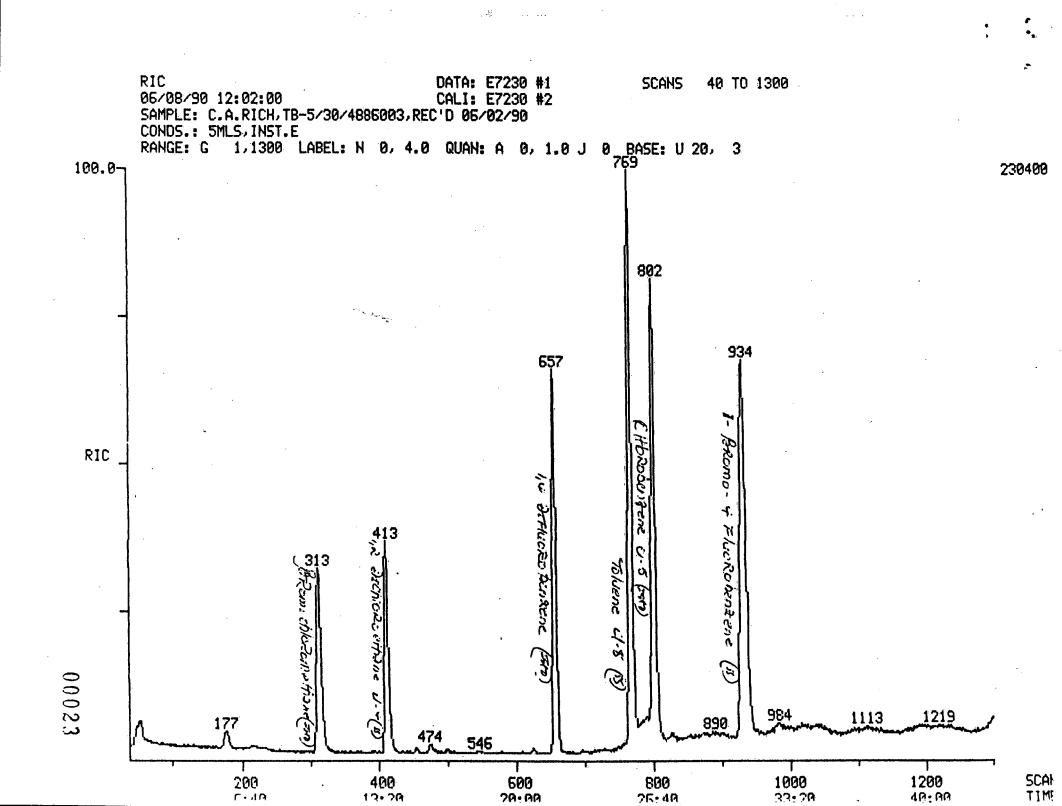
CONC. LEVEL: LOW LAB ID: 4886003

ANALYSIS DATE: 6/8/90 DIL FACTOR: 1.00

% MOISTURE:NA

UG/L

CMPD #	CAS Number	VOLATILE COMPOUNDS	
1	74-87-3	Chloromethane	10.0 U.
2	74-83-9	Bromomethane	10.0 U.
3	75-01-4	Vinyl Chloride	10.0 Ų.
4	75-00-3	Chloroethane	10.0 U.
5	75-09-2	Methylene Chloride	5.0 U. ]
6.	67-64-1	2-Propanone	10.0 U.     5.0 U.
7	75-15-0	Carbon disulfide	****
8	75-35-4	1,1-Dichloroethene	5.0 U.
9	75-34-3	1,1-Dichloroethane	5.0 U.
10	540-59-0	1,2-Dichloroethene (total)	5.0 U.
11	67-66-3	Chloroform	5.0 U.
12	107-06-2	1,2-Dichloroethane	j 5.0 U. j
13	78-93-3	2-Butanone	10.0 U.
14	71-55-6	1,1,1-Trichloroethane	5.0 U.
15	:	Carbon Tetrachloride	5.0 U.
16	108-05-4	Vinyl Acetate	10.0 U.
17	75-27-4	Bromodichloromethane	5.0 U.
18	78-87-5	1,2-Dichloropropane	5.0 U.
19	10061-01-5	cis-1,3-Dichloropropene	5.0 U.
20	79-01-6	Trichloroethene	] 5.0 U.
21	124-48-1	Dibromochloromethane	5.0 U.
22	79-00-5	1,1,2-Trichloroethane	5.0 U.
23	71-43-2	Benzene	5.0 Ü.
24	10061-02-6	Trans-1,3-Dichloropropene	5.0 U.
25	75-25-2	Bromoform	5.0 U.
26	108-10-1	4-Methyl-2-Pentanone	1 10.0 U.
27	591-78-6	2-Hexanone	10.0 U.
28	127-18-4	Tetrachloroethene	5.0 U.
29	79-34-5	1,1,2,2-Tetrachloroethane	5.0 U.
30	1.108-88-3	Toluene	5.0 U.
31	108-90-7	Chlorobenzene	5.0 U.
32	100-41-4	Ethylbenzene	5.0 U.
33	100-42-5	Styrene	5.0 U.
34	1330-20-7	Xylene (total)	5.0 U.
35	107-02-8	Acrolein	100.0 0.
36	107-13-1	Acrylonitrile	100.0 U.
37	1 110-75-8	2-Chloroethylvinylether	10.0 U.
.38	1	Dichlorodifluoromethane	10.0 U.
39	1	Dichlorobenzene (total)	30.0 U.
3,	1		



### VOLATILE ORGANICS ANALYSIS DATA SHEET

VBLKE2 SAMPLE ID: SAMPLE MATRIX: SOIL LAB ID: E7229 CONC. LEVEL: LOW

1.00 DIL FACTOR: ANALYSIS DATE: 6/8/90

% MOISTURE:NA

UG/KG

			00/10
CMPD #	CAS Number	VOLATILE COMPOUNDS	(DRY BASIS)
1	74-87-3	Chloromethane	10.0 U.
-	74-83-9	Bromomethane	10.0 U.
_	75-01-4	Vinyl Chloride	10.0 U.
4	75-00-3	Chloroethane	10.0 U.
5	75-09-2	Methylene Chloride	5.0 U.
_	67-64-1	2-Propanone	10.0 U.
7	   75-15-0	Carbon disulfide	5.0 U.
8	75-35-4	1,1-Dichloroethene	5.0 U.
9	75-34-3	1,1-Dichloroethane	5.0 U.
10	540-59-0	1,2-Dichloroethene (total)	5.0 U.
11	67-66-3	Chloroform	5.0 U.
12	107-06-2	1,2-Dichloroethane	5.0 U.
13	78- <del>9</del> 3-3	2-Butanone	10.0 U.
14	71-55-6	1,1,1-Trichloroethane	5.0 U.
15	56-23-5	Carbon Tetrachloride	5.0 U.
16	108-05-4	Vinyl Acetate	10.0 U.
17	75-27-4	Bromodichloromethane	5.0 U.
18	78-87-5	1,2-Dichloropropane	5.0 U.
19	10061-01-5	cis-1,3-Dichloropropene	5.0 U.
20	79-01-6	Trichloroethene	5.0 U.
21	124-48-1	Dibromochloromethane	5.0 U.
22	79-00-5	1,1,2-Trichloroethane	5.0 U.
23	71-43-2	Benzene	5.0 U.
24	10061-02-6	Trans-1,3-Dichloropropene	5.0 U.
25	75-25-2	Bromoform	5.0 U.
26	108-10-1	4-Methyl-2-Pentanone	10.0 U.
27	591-78-6	2-Rexanone	10.0 U.
28	127-18-4	Tetrachloroethene	5.0 U. J
29	79-34-5	1,1,2,2-Tetrachloroethane	5.0 U.
30	108-88-3	Toluene	5.0 U.
31	108-90-7	Chlorobenzene	5.0 U. (
32	100-41-4	Ethylbenzene	5.0 U.
33	100-42-5	Styrene	5.0 U.
34	1330-20-7	Xylene (total)	5.0 U.
35	107-02-8	Acrolein	100.0 U.
36	107-13-1	Acrylonitrile	100.0 U.
37	110-75-8	2-Chloroethylvinylether	10.0 Ú.
38		Dichlorodifluoromethane	10.0 U.
39		Dichlorobenzene (total)	30.0 U.
İ			

Log In No: 4886

### Sample Identification and Results

Sample No: METHOD BLANK

	max.	
Results	Allowable Levels	Found
**************************************	<u> </u>	
E P Toxicity (PPM)		
	5.0	. < .5
Arsenic	·	<10.0
Barium	100.0	< .1
Cadmium	1.0	
Chromium	5.0	. <b>&lt; .</b> 5
=	5.0	< .5
Lead	0.2	< .02
Mercury	1.0	< .1
Selenium		< .5
Silver	5.0	• • •

ND = None Detected

2 A
NYTEST ENVIRONMENTAL INC.
VOLATILE SURROGATE RECOVERY

LOG IN #: 4885,4886 PAGE #: 1

MATRIX: SOIL

							LYDAS	l
1		1,2-DICHLORO			BFB		VOAS	
Ì	SAMPLE #	ETHANE-D4	-D8	Į			OUT	
i	******	=======================================	ļ.	•				
01	VBLKE2	99 OK		-				
•	TB 5/30	90 OK						l
	BFD1-WC-1	92 OK		-		OK	-	
	BFD1-CS-1	90 OK		-				
	BFD2-W001	92 OK	98	OK			7	ļ
	BFD2-CS-1	92 OK	98	OK	99	OK	0	1
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27	•	i	1		i		i	Ì
28		1	1		i		j	1
29	•	1	1		i		i	j
30		.	<u> </u>		1			LIMITS
	4 3_6700.00				THANE-D4			53 -131
		1,2-DICHLOROETHANE-D4						75 -123
	TOLUENE- D8							40 -407

BFB

69 -127

<sup>\*</sup> SURROGATES OUTSIDE QC LIMITS

3 A NYTEST ENVIRONMENTAL INC.

# VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

LOGIN #: 4885,4886 MATRIX: SOIL PAGE: 1

CONC.		SAMPLE RESULT		RECOVERY	CONC.	RECOVERY	RPD	RPD	RECOVERY
	50 50 50	0.00 2.00	29.74 34.53 35.08	59.48 OK 69.06 OK 66.16 OK	36.50 42.71 48.94	73.00 OK 85.42 OK 93.88 OK	20.41 OK 21.18 * 34.64 *	40 18 17	15 -160   50 -115   60 -125   25 -175   45 -135
	     	50 50 50	50   0.00 50   0.00 50   2.00	50   0.00   29.74 50   0.00   34.53 50   2.00   35.08	50   0.00   29.74   59.48 OK 50   0.00   34.53   69.06 OK 50   2.00   35.08   66.16 OK	50   0.00   29.74   59.48 OK   36.50 50   0.00   34.53   69.06 OK   42.71 50   2.00   35.08   66.16 OK   48.94	50   0.00   29.74   59.48 OK   36.50   73.00 OK   50   0.00   34.53   69.06 OK   42.71   85.42 OK   50   2.00   35.08   66.16 OK   48.94   93.88 OK	50   0.00   39.74   59.48 OK   36.50   73.00 OK   20.41 OK   50   0.00   34.53   69.06 OK   42.71   85.42 OK   21.18 *	50   0.00   35.30   66.80 0K   42.21   57.42 0K   20.41 0K   40   50   0.00   34.53   69.06 0K   42.71   85.42 0K   21.18 *   18   50   2.00   35.08   66.16 0K   48.94   93.88 0K   34.64 *   17

### GC/MS TUNING AND MASS CALIBRATION BROMOFLUOROBENZENE (BFB)

Contractor: NYTEST ENVIRONMENTAL INC.

Instrument ID:E

Lab ID:E7092

Data Release Authorized By: 1969

12:58:00

	m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
- I	50	15.0 - 40.0% of the base peak	24.78
Ì	75	30.0 - 60.0% of the base peak	42.76
İ	<b>9</b> 5	Base peak, 100% relative abundance	100.00
i	96	5.0 - 9.0% of the base peak	6.90
i	173	Less than 2.0% of mass 174	*(00.0 ) 00.0
İ	174	Greater than 50.0% of the base peak	91.61
İ	175	5.0 - 9.0% of mass 174	5.99 [ 6.54]*
i	176	Greater than 95.0%, but less than 101.0% of mass 174	88.13 [96.20]*
	177	5.0 - 9.0% of mass 176	4.96 [ 5.62]**
- 1		*	

<sup>\*</sup> Value in parenthesis is % mass 174.

THIS PERFORMANCE TUNE APPLIES TO THE FOLLOWING SAMPLES, BLANKS AND STANDARDS.

 1	SAMPLE ID	LAB ID	DATE OF ANALYSIS	TIME OF ANALYSIS
	PERFORMANCE STANDARD   VSTD050   VSTD100   VSTD150   VSTD200   VSTD020	E7092 E7093 E7096 E7098 E7101 E7102	5/21/90   5/21/90   5/21/90   5/21/90   5/21/90   5/21/90	12:58 13:48 16:42 18:28 21:04 21:53
ı	•			0.000

00028

<sup>\*\*</sup> Value in parenthesis is % mass 176.

## GC/MS TUNING AND MASS CALIBRATION BROMOFLUOROBENZENE (BFB)

Contractor: NYTEST ENVIRONMENTAL INC.

Instrument ID:E Lab ID:E7227

Date: 6/8/90

Date: 6/8/90
Data Release Authorized By:

9:31:00

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	15.0 - 40.0% of the base peak	28.20
   75	30.0 - 60.0% of the base peak	46.27
95	Base peak, 100% relative abundance	100.00
96	5.0 - 9.0% of the base peak	7.10
173	Less than 2.0% of mass 174	0.00 T 0.001*
174	Greater than 50.0% of the base peak	70.07
   175	5.0 - 9.0% of mass 174	4.36 [ 6.22]*
176	Greater than 95.0%, but less than 101.0% of mass 174	68.66 [97.99]*
177	5.0 - 9.0% of mass 176	3.92 [ 5.71]**

<sup>\*</sup> Value in parenthesis is % mass 174.

THIS PERFORMANCE TUNE APPLIES TO THE FOLLOWING SAMPLES, BLANKS AND STANDARDS.

SAMPLE ID	LAB ID	DATE OF ANALYSIS	TIME OF ANALYSIS
PERFORMANCE STANDARD	£7227	6/8/90	9:31
WORKING STANDARD	E7228	6/8/90	9:59
VBLKE2	E7229	6/8/90	11:10
TB 5/30	4886003	6/8/90	12:02
	4886002	6/8/90	12:54
BFD1-WC-1	4886001	6/8/90	13:47
BFD1-CS-1	4885001	6/8/90	14:40
BFD2-W001   BFD2-CS-1	4885002	6/8/90	15:32
	~	ļ	•
		<u> </u>	]
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i 	•	Ì	
		}	

<sup>\*\*</sup> Value in parenthesis is % mass 176.



#### AIRBORNE EXPRESS

April 24, 1997

Ms. Mary Anne Rosa
Project Manager
Emergency and Remedial Response Division - Region II
U.S. Environmental Protection Agency
290 Broadway, 19th Floor
New York, New York 10007-1866

Re: Reply to Request for Information on Hazardous Substances at the Kodalux Processing Laboratory, Fair Lawn, New Jersey

Dear Ms. Rosa:

This is in response to your February 26, 1997 letter requesting information regarding the Kodalux Processing Laboratory (facility), located in Fair Lawn, New Jersey. Your request was mailed to the facility at Fair Lawn and thereafter forwarded to Eastman Kodak Company ("Kodak") corporate offices in Rochester, New York for my attention and handling. The status of the facility with respect to Kodak ownership is discussed in the accompanying response. The time to respond to this request was extended to April 26, 1997 by Ms. Amelia Wagner, Esq., of your staff.

As stated in Kodak's January 29, 1991 supplemental response to your office's previous request for information regarding handling of hazardous substances at the facility, four petroleum underground storage tanks and a dry well for the fire suppression system have been removed. These activities have been reported to New Jersey Department of Environmental Protection (NJDEP), case nos. 90 06 15 1528 and 90 05 22 1638.

Upon developing the attached response to your request for information, Kodak has concluded that the following reports inappropriately refer to the usage of trichloroethene (TCE) at the Kodalux Processing Laboratory:





DCN: 92-246-080-02

## PHASE II GROUNDWATER INVESTIGATION REPORT KODALUX PROCESSING LABORATORY FAIR LAWN, NEW JERSEY

# Prepared for:

Mr. Gary Costanzo
Environmental Technical Services
Health and Environment Laboratories
Eastman Kodak Company
Rochester, New York

Prepared by:

Radian Corporation 155 Corporate Woods, Suite 100 Rochester, New York 14623 (716) 292-1870

## TABLE OF CONTENTS

			rage
	EXE	CUTIVE SUMMARY	ES-1
1.0	INTI	RODUCTION	1-1
	1.1 1.2	Project Description	
2.0	MON	NITORING WELL LOCATIONS	2-1
3.0	MON	NITORING WELL AND PILOT BOREHOLE INSTALLATION	3-1
	3.1 3.2 3.3	Methodology - Monitoring Well Drilling	3-2 3-3
4.0	WEI	L DEVELOPMENT	4-1
	4.1 4.2 4.3	Methodology	.4-1
5.0	SAM	IPLING PROCEDURES	5-1
	5.1 5.2 5.3 5.4 5.5 5.6 5.7	General Sampling Equipment Monitoring Well Sampling Procedures Pilot Borehole Sampling Procedures Drilling Cutting Sampling Procedures Decontamination Analytical Parameters	5-1 5-2 5-4 5-4 5-5
6.0	ANA	LYTICAL RESULTS	6-1
	6.1 6.2 6.3 6.4 6.5	Field Data  Monitoring Well Analytical Results  Pilot Borehole Analytical Results  Drilling Cuttings Analytical Results  Quality Assurance/Quality Control	6-1 6-4 6-5
7.0	CON	ICLUSIONS	7-1

## TABLE OF CONTENTS (Continued)

r · · · · · · · · · · · · · · · · · · ·	age
APPENDIX A - NJDEP BEDROCK MONITORING WELL SPECIFICATIONS	<b>A-</b> 1
APPENDIX B - DRILLING LOGS	B-1
APPENDIX C - MONITORING WELL SCHEMATICS	C-1
APPENDIX D - MONITORING WELL CERTIFICATION FORMS	D-1
APPENDIX E - GROUNDWATER DEVELOPMENT RECORDS	E-1
APPENDIX F - ANALYTICAL RESULTS	F-1

# LIST OF FIGURES

Figure 1	Monitoring Well Locations
Figure 2	Groundwater Elevation Map - November 14, 1991
Figure 3	Groundwater Elevation Map - December 19, 1991
Figure 4	Top of Bedrock Elevation Map
Figure 5	Section A-A'
Figure 6	Section B-B'
Figure 7	Analytical Results for Monitoring Wells - November 1991

## LIST OF TABLES

Table 1	Groundwater Elevation Data
Table 2	Field Data for Kodalux Monitoring Wells
Table 3	Organic Compounds Detected in Kodalux Monitoring Wells - November 1991
Table 4	Inorganics Results for Kodalux Wells - November 1991
Table 5	Total Recoverable Petroleum Hydrocarbon Detected in Kodalux Pilot Boreholes - October 1991
Table 6	Kodalux Drilling Cutting Waste Characterization Analytical Results - October 1991
Table 7	Blank Sample Results
Table 8	Field Duplicate Results

#### **EXECUTIVE SUMMARY**

A Phase II investigation was conducted at the Kodalux Processing Laboratory in Fair Lawn, New Jersey. This investigation included:

- Advancement of six pilot boreholes (PB-1 through PB-6);
- Collection of groundwater samples from the pilot boreholes for Total Recoverable Petroleum Hydrocarbon (TRPH) analysis;
- Installation of five monitoring wells (MW-6 through MW-10);
- Collection of groundwater samples from new and existing monitoring wells for volatile organics, base/neutral and acid-extractable compounds, total cyanide, formaldehyde, TRPH, silver, and total and hexavalent chromium;
- Collection of one composite sample from drummed drill cuttings for waste characterization; and
- Collection of water elevation data for use in interpretation of site hydrology.

No visual signs of fuel oil were observed in any of the drilling cuttings or groundwater samples collected from the six pilot boreholes. Total recoverable petroleum hydrocarbons (TRPH) was detected in PB-6 at 680  $\mu$ g/L (0.680 mg/L) and was not detected in groundwater samples collected from the other five pilot boreholes.

No zones of detectable vapor concentrations or visual signs of contamination were observed in any of the drilling cuttings from the installed monitoring wells (MW-6 through MW-10). No analytes on the Method 625 Priority Pollutants list were detected above the Contract Required Quantitation Limits (CRQL) in the monitoring well groundwater samples. Up to nine Tentatively Identified Compounds (TICs) were reported for each sample. No hydroquinone was detected in any well sample above the estimated detection limit.

The following analytes on the Method 624 Priority Pollutants list were detected above the CRQL. 1,1,1-Trichlorethane was detected in eight wells. Detected concentrations ranged from 5.5  $\mu$ g/L in MW-4 to 13000  $\mu$ g/L in MW-2. 1,1-Dichloroethane was detected in five wells. Detected concentrations ranged from 8.6  $\mu$ g/L in MW-8 to 110  $\mu$ g/L in MW-3. 1,1-Dichloroethene was detected in four wells, and ranged from 17  $\mu$ g/L (in MW-1) to 460  $\mu$ g/L (in MW-7). Chloroform was detected in three wells at concentrations ranging from 6.0  $\mu$ g/L to a high of 12  $\mu$ g/L (in MW-6). Trichlorethene was detected in three wells. A maximum concentration of 13  $\mu$ g/L was detected in MW-9. Trans-1,2-Dichloroethene was detected at 9.0  $\mu$ g/L in MW-1. Vinyl chloride was detected in MW-3 at 110  $\mu$ g/L. Chloroethane was detected at 15  $\mu$ g/L in MW-2. Benzene was detected at 13  $\mu$ g/L in MW-3. The TICs hexachlorobutadiene and 1,1,2-trimethyl-1,2,2-trifluoroethane were each estimated present in one well.

Seven wells contained detectable levels of TRPH. Concentrations ranged from 610 μg/L to 12,000 μg/L. MW-2 contained the highest quantity of petroleum hydrocarbons, with 12,000 μg/L. MW-1 contained the lowest detected quantity of petroleum hydrocarbons. Formaldehyde was detected in six wells. MW-3 contained the highest quantity of formaldehyde, with 260 μg/L. MW-3, MW-6, MW-7 and MW-8 contained total cyanide at concentrations ranging from 0.017 mg/L to 0.24 mg/L. Total silver concentrations ranged from 0.01 mg/L to 0.013 mg/L in MW-4, MW-6, MW-7, and MW-10. MW-1 through MW-7 contained concentrations of total chromium ranging from 0.011 mg/L to 0.093 mg/L. Hexavalent chromium was detected in MW-2 and MW-7 at 0.016 mg/L and 0.028 mg/L, respectively.

No volatile organics, semivolatile organics, or isobutanol were detected in the drill cuttings composite sample. In addition, analyses indicated the cuttings do not exhibit any hazardous waste characteristics.

Groundwater is entering the site predominantly from the east-southeast. A localized groundwater mound exists in the vicinity of monitoring wells MW-4 and MW-5; this mound diverts groundwater flow to the north and to the west. This diversion is possibly due to a bedrock "high," located beneath the facility.

Phase2.fnl/g ES-2

#### INTRODUCTION

## 1.1 Project Description

1.0

At the request of Eastman Kodak Company, Radian Corporation has conducted a second phase of subsurface environmental investigation at the Kodalux Processing Laboratory (Kodalux) in Fair Lawn, New Jersey. This report discusses the field activities and analytical results of Phase II groundwater investigation activities at the site.

In accordance with our September 13, 1991 letter of technical approach and scheduling, the scope of the Phase II Investigation included:

- Installation of five monitoring wells (MW-6 through MW-10);
- Advancement of six pilot boreholes (PB-1 through PB-6);
- Collection of groundwater samples from the pilot boreholes for Total Recoverable Petroleum Hydrocarbon (TRPH) analysis;
- Collection of groundwater samples from new and existing monitoring wells for volatile organics, base/neutral and acid-extractable compounds, total cyanide, formaldehyde, TRPH, silver, and total and hexavalent chromium;
- Collection of one composite sample from drummed drill cuttings for waste characterization; and
- Collection of groundwater elevation data for use in interpretation of site hydrology.

Boring, monitoring well installation, and well development activities for this project were conducted by Summit Drilling Corp., Inc., New Jersey-licensed well drillers. These activities were supervised by a hydrogeologist from Radian Corporation.

## Historical Environmental Activities

1.2

In May and June 1990, CA Rich Consultants, Inc., conducted an Underground Storage Tank (UST) closure program at the Kodalux site. A report detailing the closure program was submitted to the New Jersey Department of Environmental Protection (NJDEP) on August 1, 1990. USTs removed during closure activities included two 20,000-gallon No. 6 heating oil tanks, one 3,000-gallon unleaded gasoline tank, and one 2,000-gallon unleaded gasoline tank. Heating oil was detected in soil underlying both of the No. 6 heating oil tanks. The NJDEP Hotline was notified of the No. 6 heating oil discharge (May 22, 1990) and the site was assigned Case Number 90 05 22 1638.

In response to the above observations and a June 5, 1990, letter from Mr. Joseph Miller of NJDEP to Mr. Dick Spiegel of Eastman Kodak Company, CA Rich Consultants, Inc., installed one monitoring well (MW-1, see Figure 1) adjacent to the former No. 6 heating oil tank locations, and excavated approximately 15 cubic yards of soil from below the former gasoline pump area. A Discharge Investigation and Corrective Action Report (DICAR) dated October 3, 1990, discusses the above activities, and addresses site characterization, soil remediation, and groundwater monitoring.

In September 1990, Radian Corporation conducted a subsurface vapor investigation in specific chemical use and processing areas at the facility. The objective of this investigation was to quantify subsurface vapor concentrations of chemical constituents, and provide information to be used for locating potential monitoring wells.

In March and April 1991, Radian conducted a Phase I Groundwater Investigation at the facility, which consisted of the installation of four monitoring wells (MW-2 through MW-5) and sampling of five monitoring wells (MW-1 through MW-5). The activities and findings of this investigation were presented to Kodak in a report entitled "Final Groundwater Inverstigation Report, Kodalux Processing Laboratory, Fair Lawn, New Jersey," dated September 9, 1991. It was determined during this

## investigation that:

- In MW-2 a saturated parting was noted in the bedrock from 29.0 to 29.5 feet below grade. Perched water and hydrocarbons believed to be No. 6 fuel oil were encountered in this zone. The thickness of the fuel oil floating in MW-2 was estimated between 0.5 and 0.75 inches. Below this zone, an underlying confined aquifer was encountered at MW-2 at 34.0 to 35.0 feet below grade.
- Review of data from MW-1 indicated that the perched zone and confined aquifer encountered in MW-2 also exists at this location.
- The uppermost aquifer in the area of MW-3, and MW-4, and MW-5 appears to be under unconfined conditions.
- Approximately 0.25 inches of fuel oil was observed in the purge water from MW-2 at the time of sampling. In addition, fuel oil droplets were observed in the purge water from MW-1.
- Of the five wells, MW-2 showed the highest concentrations of petroleum hydrocarbons. Hydrocarbons were also detected in MW-1.
- More extractable organics were detected in MW-2 than in the other four wells, although generally at levels just above the CRQL.
- 1,1,1-Trichloroethane was present in every well, with the highest concentration present in MW-2. 1,1-Dichloroethane was detected in four wells (MW-1, MW-2, MW-3, and MW-4), with the highest concentration occurring in MW-3. MW-3 also contained the highest level of 1,1-dichloroethene, which was found in three wells (MW-2, MW-3, and MW-4). Vinyl chloride also was detected in MW-3. Other volatiles detected in MW-3, MW-1, and/or MW-5, included benzene, toluene, cis-1,2-dichloroethane, and chloroform.
- Formaldehyde was detected in MW-3, MW-4 and MW-5 at levels from 140  $\mu$ g/L to 2500  $\mu$ g/L. In addition, cyanide was detected in MW-3, and total chromium in MW-4 and MW-5.
- No organic compounds were detected in drummed drilling cuttings.

Five monitoring wells (MW-6 through MW-10) were installed as part of the Phase II investigation at Kodalux to further investigate groundwater conditions at the facility. The well locations were slightly modified from the locations stated in the original work plan, due to the presence of underground utilities and overhead interferences. Final monitoring well locations are described below, and are shown on a site map, presented in Figure 1.

MW-6	Located near the southwestern corner of the property.
MW-7	Located approximately 110 feet west of MW-2, just north of the westernmost loading dock.
MW-8	Located along the western property boundary, approximately 370 feet north of NJ Highway 208.
MW-9	Located in the north parking lot, approximately 220 feet north of MW-2.
MW-10	Located approximately 30 feet south of the southeastern corner of the building.

Coordinates and elevations of the resultant wells were measured by Donald H. Stires Associates, New Jersey-licensed surveyors. Data were tied to New Jersey Geodetic Survey Control and are included on the site map (Figure 1).

## 3.1 Methodology - Monitoring Well Drilling

Five monitoring wells were installed during this investigation. All borings were completed as bedrock monitoring wells in accordance with NJDEP specifications (Appendix A), and were designed to monitor the uppermost aquifer.

Split-spoon samples were collected at 5-foot intervals during well construction. Borings, 10 inches in diameter, were advanced to each split spoon sample interval using air rotary methods. Spoons were driven and samples collected until refusal at the bedrock surface. The soils were classified and inspected for signs of visible contamination.

After bedrock was encountered, the 10-inch diameter borings were advanced 5 feet into competent bedrock using air rotary methods, after which 6-inch diameter steel casings were set. A cement-bentonite grout was emplaced into the annular space from the bottom of the casing to the ground surface. The grout was pumped under pressure through a tremie pipe to ensure positive placement of the grout. Grout was allowed to set for a minimum of 12 hours. After allowing the grout to set, 6-inch diameter borings were then advanced below the steel casings to approximately 10 feet below the water table but not greater than 25 feet below the bottom of the casing. Rock cuttings were visually inspected. Bedrock stratigraphy was classified based on visual inspection of the cuttings, drilling time, and drilling method responses to lithologic variability. Logs of borings are presented in Appendix B.

To protect the wells against damage from vandalism or vehicular traffic, flush-mount manholes were slipped over the casing and anchored 1 foot below grade with grout. The steel casings were fitted with sealed locking caps and locks. A 2-foot by 2-foot by 4-inch thick concrete pad was poured into a flush mount form fitted around the manhole cover.

Efforts were made to reduce the possibility of introducing or carrying-over contamination from one borehole to another via the well bore. Equipment was steam-cleaned prior to each borehole. Cleaning was performed at a temporary decontamination pad. The decontamination materials and pad were containerized in a 55-gallon drum upon project completion, and the drum was labeled to identify the date filled and the source (i.e., decon pad and sediment). Soil and rock cuttings from each well were placed in 55-gallon DOT drums upon generation, and the drums were labeled to identify the date filled and the source (i.e., MW-3 soil cuttings).

During drilling activities, an HNu, and Drager tubes for formaldehyde and vinyl chloride, were used periodically to monitor air quality in the breathing zone of the worker closest to the borehole. These results are reported in Section 3.3.

## 3.2 <u>Methodology - Pilot Borehole Drilling</u>

Six pilot boreholes were advanced during this investigation. The pilot boreholes were designed to investigate (and attempt to delineate) the No. 6 fuel oil that was encountered in a perched zone in monitoring wells MW-1 and MW-2. All pilot boreholes were abandoned after sampling with the exception of PB-1, which was completed as monitoring well MW-7.

Borings 6 inches in diameter were advanced using air rotary methods.

Undisturbed split-spoon samples were collected at 5-foot intervals in advance of the drill bit, until refusal at bedrock. The soils were classified by a Radian geologist and inspected for signs of visible contamination. Logs are presented in Appendix B.

The borings were advanced into bedrock until groundwater was encountered. Close attention was paid to the cuttings, drilling time, and drilling responses to determine whether any perched water or fuel oil was encountered. Bedrock stratigraphy was described based on visual inspection of the cuttings, drilling time, and drilling responses to lithologic variability.

Phase2.fnl/g 3-2

The pilot boreholes were left open until a sufficient volume of groundwater had accumulated to fill 1-liter sample containers required for TRPH analyses. Upon sufficient accumulation, the groundwater samples were collected; these boreholes were not developed prior to sampling. Following sampling, the boreholes were abandoned by filling with a cement-bentonite grout. The grout was pumped under pressure through a tremie pipe to ensure positive placement.

To prevent cross-contamination of groundwater, all drilling equipment was steam-cleaned prior to drilling each pilot borehole. Soil and rock cuttings from each borehole were stored in labeled 55-gallon drums.

During drilling, Draeger tubes for formaldehyde and vinyl chloride were used periodically to monitor air quality in the breathing zone of the worker closest to the borehole. These results are presented in Section 3.3.

#### 3.3 Results

HNu screening was conducted during the drilling of MW-6, MW-7, and MW-8, before the unit malfunctioned. HNu screening of the soils and breathing zone indicated no zones of detectable vapor concentrations. Drager tubes for formaldehyde and vinyl chloride (used to screen the breathing zone during all drilling activities) indicated no zones of detectable vapor concentrations. No visual signs of contamination were observed in any of the soils.

The unconsolidated overburden encountered consisted of predominantly fine-grained to medium-grained sand, containing variable concentrations of silt, clay, gravel, and rock fragments. As a general rule, the sands were medium-grained and silty; gravel was fine and consisted of sandstone, granite, and aphanitic rock. Rock fragments were predominantly sandstone from the underlying bedrock, with some granite. The majority of the overburden was glacially derived, with the upper materials possibly being fill. HNu screening values and soil classifications were recorded with depth, and are presented in the Drilling Logs, Appendix B.

Phase2\_fnl/g 3-3

Bedrock was encountered from approximately 8.5 feet (PB-5) to 20 feet (MW-7/PB-1) below grade. Bedrock encountered generally consisted of hard, red, medium-grained sandstone. All casings were set within this sandstone.

Bedrock encountered beneath the cased sections consisted predominantly of hard to very hard, red, medium-grained sandstone, with softer, water-bearing sandstone and shale zones noted periodically (in Appendix B).

None of the pilot boreholes intersected the perched zone containing fuel oil that had been encountered during the installation of MW-1 and MW-2. This conclusion is based on close observation of the drilling activities, and groundwater sampling activities that failed to show any indication of a free-phase hydrocarbon layer.

Total depths for completed monitoring wells varied from 36.25 feet (MW-7) to 39.52 feet (MW-9) below top of casing. Total boring depths ranged from approximately 36.7 to 39.9 feet below surface grade. Bedrock lithologies and observations were recorded with depth and are presented in the Drilling Logs, Appendix B. Monitoring well schematics are presented in Appendix C.

Thirty-two drums were generated during this phase of work; 22 contained soil and rock cuttings, 5 contained development water, 3 contained purge water, 1 contained the decon pad and sediment, and 1 contained sample tubing and bailers. A total of 58 drums have been generated during drilling and sampling activities to date.

Following completion, the wells were surveyed by Donald H. Stires
Associates, a professional land surveyor licensed in the State of New Jersey. A copy of
each "Monitoring Well Certification Form - B" is included in Appendix D.

## 4.1 Methodology

All newly installed monitoring wells were developed to remove any material (solid or liquid) introduced to the well during drilling and well installation and to promote groundwater flow into the well. Development was conducted on October 28 and 29, 1991. Initial static water levels were collected prior to development of each well. A submersible pump was used to develop MW-7. The remaining wells were developed with a bailer. Each well was pumped or bailed to dryness at least once. Following development, total well depth was measured in each well. Field records of well development are presented in Appendix E. Development water was containerized in labeled 55-gallon DOT drums. The labels identified date filled and the source (i.e., MW-3 development water). Five drums contained development water.

## 4.2 Static Water Measurements

Depths to static water from top of well casings for MW-6 through MW-10 were measured prior to development activities. These and subsequent measures are recorded on the well logs (Appendix B). Depths to static water from top of well casings for all monitoring wells were measured on November 14, 1991, prior to well purging and sampling activities. A second set of water level measures were collected on December 19, 1991. November water level elevations varied from 56.25 ft. MSL (MW-6) to 70.86 ft. MSL (MW-5). December water level elevations varied from 60.53 ft. MSL (MW-3) to 72.76 ft. MSL (MW-5). Water level elevations generally rose (MW-1 through MW-9) from November to December, with a maximum rise of 4.88 ft (MW-6) and an average rise of 1.7 ft. Water level elevation decreased 2.74 ft. in MW-10.

Water level elevations are presented in Table 1, and the configurations of the groundwater table for November and December are depicted in Figures 2 and 3, respectively.

## 4.3 Groundwater Flow

Based on this investigation and the Phase I investigation, groundwater appears to exist under both confined and unconfined conditions under the facility. Near MW-1 and MW-2, the aquifer is under slightly artisan conditions due to a locally confining sandstone bed overlying the saturated zone. The aquifer is unconfined at the remainder of the site.

Groundwater is entering the site predominantly from the east-southeast. A localized groundwater mound exists in the vicinity of monitoring wells MW-4 and MW-5, as indicated in the groundwater elevation maps for measurements taken November and December 1991 (Figures 2 and 3, respectively). This mound, which is possibly due to a bedrock "high" located beneath the facility, diverts groundwater to the north and to the west. Bedrock elevation contours are presented in Figure 4. It is not known what impact, if any, the basement floor drains in this vicinity may have on groundwater flow.

The groundwater surface roughly parallels the bedrock surface and is generally located approximately 15 feet below the bedrock surface. Cross-sections depicting the hydrogeology are presented in Figures 5 and 6.

#### 5.1 General

This section describes procedures used in the sampling of the groundwater monitoring wells (MW-1 through MW-10), pilot boreholes (PB-1 through PB-6), and drilling cuttings. Sampling and analysis were performed as described in the September 13, 1991 work plan. Monitoring well and pilot borehole locations are shown in Figure 1. Monitoring well groundwater samples were analyzed for volatile organics, base/neutral and acid-extractable compounds, total cyanide, formaldehyde, total recoverable petroleum hydrocarbons, silver, chromium, and total and hexavalent chromium. Pilot borehole groundwater samples were analyzed for total recoverable petroleum hydrocarbons. Drilling cuttings were analyzed for waste disposal characterization. Groundwater sampling procedures discussed in RCRA Ground-Water Monitoring Technical Enforcement Guidance Document, USEPA, September 1986, were followed. The following subsections discuss sampling procedures and analytical methods.

## 5.2 Sampling Equipment

Groundwater sampling was performed using dedicated, non-dedicated, and miscellaneous equipment and reagents. Dedicated equipment was used at only one well. Non-dedicated equipment was used in all wells, and a strict decontamination regimen was followed between wells. Miscellaneous equipment was used at each well but did not require decontamination as there was no direct contact with the samples. Each type of equipment necessary to complete the sampling is discussed below.

<u>Dedicated Equipment</u>: Each monitoring well and pilot borehole had a dedicated Teflon bailer and Teflon-coated stainless steel line to avoid potential cross-contamination of wells. Tubing associated with the purge pump was dedicated to each well.

Non-Dedicated Equipment: Non-dedicated equipment included a purge pump and an electronic water level indicator.

Miscellaneous Equipment and Reagents: Other equipment and reagents used during the sampling are listed below:

- Conductivity/temperature/pH meter, capable of measuring conductivity to 20,000 uS, temperature from -30.0 to 105.0°C. and pH from 0.01 to 14.00;
- 200-mL wide-mouth glass bottle;
- Rinse bottles for Alconox® and water;
- Sample labels;
- Clear tape (to protect sample labels);
- Ice for sample preservation;
- Chemicals for sample preservation;
- Distilled water;
- Teflon tape (for wrapping the sample labels);
- Calibration buffers for pH meter;
- Calibration solution for conductivity meter;
- Safety equipment (detailed in health and safety plan); and
- Sample containers.

## 5.3 Monitoring Well Sampling Procedures

The sampling procedures presented below represent the minimum requirements to ensure the collection of acceptable monitoring well groundwater samples. The procedures are listed in the order in which they were performed in the field.

Static water level measurement: An electronic water level indicator was used to determine the static water level in each well before purging and sampling were performed. Markings on the tape allowed for measurement to 0.01 foot. The tape was decontaminated before advancing to the next well.

Well Purging: Standing water from the well casing was removed before samples were collected. Purging was performed as follows: Teflon tubing was placed into each well with the open end just above the well bottom. For wells with medium recharge rates, a minimum of one well volume was removed with removal continuing until well drawdown approached dryness. Wells with low recovery rates were purged once to near dryness. Evacuation rates were kept below 5 gallons per minute, and the well was never pumped completely to dryness. In addition, the pump intake was never placed more than six feet below the static water level in the well.

A total of 3 drums of water were containerized during well purging. Purge tubing and sample bailers were containerized in one drum.

Temperature, pH, and conductivity: Before and after collection of samples, the temperature, pH, and conductivity probes were placed in a wide-mouthed glass bottle into which a representative sample of well water has been poured. The probes were allowed to equilibrate with the water sample before final readings were taken from the meters. The glass bottle was rinsed with distilled water and a portion of the groundwater sample before use at each well.

Sample Collection: A total of ten groundwater samples were collected. The samples were collected at MW-1, through MW-10. The water level within each well had recovered (within 2 feet of the pre-purge static water level) before samples were collected. A dedicated bailer was unwrapped, tied to a new draw line, and lowered slowly into the well, to minimize volatilization of organic compounds.

5-3

Once the bailer was filled, it was slowly withdrawn from the well. The sample was poured from the top of the bailer into each sample container as appropriate, and into a separate container for field measurements, as previously described.

Trip Blanks: For each analytical parameter, one sample container was filled with Type II reagent grade water in the laboratory, shipped to the site with the empty containers, handled like a sample, and returned to the laboratory for analysis.

Equipment Blanks: For each analytical parameter, one sample container was filled with Type II reagent grade water by running it through a decontaminated bailer prior to use. The container was then sealed, handled like a sample, and sent to the laboratory for analysis.

## 5.4 Pilot Borehole Sampling Procedures

The pilot boreholes were left open until a sufficient volume of groundwater had accumulated to fill a 1-liter sample container required for TRPH analyses. Samples, trip blanks, and equipment blanks were collected in the same manner as described above.

## 5.5 Drilling Cutting Sampling Procedures

<u>Sample Collection</u>: Drilling cuttings were collected from each 5-foot increment during monitoring well and borehole installation. Cuttings were collected in individual 4-ounce jars. Upon completion of drilling, the cuttings from these jars were transferred into a stainless steel bowl, composited into one sample, and transferred into the appropriate sample containers.

<u>Trip Blanks</u>: For each analytical parameter, one sample container was filled with Type II reagent grade water in the laboratory, shipped to the site with the empty containers, handled like a sample, and returned to the laboratory for analysis.

Phase2.fnl/g 5-4

#### 5.6 Decontamination

Dedicated equipment does not require the strict decontamination regimen that is applied to non-dedicated equipment. Dedicated bailers were disposed of at the conclusion of sampling.

All non-dedicated equipment was decontaminated immediately after sampling, and before moving on to the next sampling station, to prevent cross-contamination of well water samples. The decontamination regimen was performed as follows:

- Non-phosphate soap and water rinse; and
- Final distilled water rinse.

## 5.7 Analytical Parameters

This section discusses the analytical parameters and methods performed on the monitoring well groundwater samples, pilot borehole groundwater samples, and drilling cutting samples. Recra Environmental, Inc. (New Jersey Lab ID #73455) in Amherst, New York, performed the following analyses:

## Monitoring Well Groundwater Samples:

- Base neutral and acid extractable compounds, by EPA Method 625, plus the identification and quantification of the 15 highest nontargeted compounds and the total number of peaks;
- Hydroquinone, by EPA Method 8270;
- Volatile organics, by EPA Method 624, including 0-, m-, and pxylenes, plus the identification and quantification of the 15 highest non-targeted compounds and the total number of peaks;

- Formaldehyde, by NIOSH Method 3500;
- Total petroleum hydrocarbons, by EPA Method 418.1;
- Total cyanide, by EPA Method 9010;
- Total silver, by atomic absorption, EPA Method 272.1;
- Total chromium, by EPA Method 218.2; and
- Hexavalent chromium, by EPA Method 7195.

One field duplicate, one trip blank, and one equipment blank were collected for analysis of each of the parameters listed above. Due to a laboratory oversight, the trip blank was not analyzed for hexavalent chromium.

## Pilot Borehole Groundwater Samples:

• Total recoverable petroleum hydrocarbons (TRPH) by EPA Method 418.1.

One field duplicate, one trip blank, and one equipment blank were collected for analysis. Due to a laboratory oversight, the trip blank was not analyzed for TRPH.

## **Drilling Cuttings:**

- Target Compound List (TCL) volatile organics plus trichlorofluoromethane and 1,1,2-trichloro-1,2,2-trifluoroethane, by EPA Method 8240;
- TCL semi-volatile organics plus 1,2-dichlorobenzene, nitrobenzene, and pyridene, by EPA Method 8270;
- Isobutanol, by EPA Method 8015;
- TCLP metals;
- Ignitability;

- Corrosivity; and
- Reactivity.

One trip blank was collected for analysis of TCL volatile organics plus trichlorofluoromethane and 1,1,2-trichloro-1,2,2-trifluoroethane by EPA Method 8240; and isobutanol by EPA Method 8015.

The five pilot boreholes, and the pilot borehole and monitoring well drilling cuttings, were sampled October 24 through October 28, 1991. The ten monitoring wells were sampled November 15, 1991. The location of the pilot boreholes and monitoring wells is shown in Figure 1. Samples were sent to Recra Environmental, Inc. for analysis.

The field data collected with the samples are presented below. Also discussed below are the analytical results for these analyses, followed by a brief discussion of the blank and quality control results. Copies of the analytical results are found in Appendix F.

## 6.1 Field Data

Water table elevation data are provided in Table 1. Table 2 presents the field measurement data collected concurrently with the monitoring well groundwater samples. The field data includes the depth to water; purge start and stop times; total volume purged from the well; well water pH, temperature and conductivity; and a general assessment of the well recovery rate.

## 6.2 Monitoring Well Groundwater Analytical Results

Table 3 and Table 4 present the results of the organic and inorganic analyses, respectively. Table 3 presents results for only those Base-Neutral and Acid Extractable (BNAE) Organics and Volatile Organics which were detected in any of the monitoring wells. Table 4 presents results for all the inorganic analytes, whether they were detected in the monitoring wells or not. Both tables list the analytical methods used and note which laboratory performed the analysis. Results are also shown in Figure 7.

Any results detected above the detection limit were reported in the Recra Environmental Inc. laboratory report. Any results detected below the detection limit were reported in the laboratory report with a "J" qualifier, indicating that concentrations were estimated, but were greater than zero. In Tables 3 and 4, results reported by Recra less than the detection limit have been replaced with the symbol "J," to indicate that low levels of the analyte were detected but with less quantitative certainty. The reported values for these low-level results are contained in the individual Recra laboratory report in Appendix F.

Base/Neutral and Acid Extractables: As seen in Table 3, no analytes on the Method 625 Priority Pollutant list were detected above the CRQL. MW-2 contained two Method 625 analytes at levels less than the CRQL. These included naphthalene and phenanthrene. In addition, one other compound - 1,3-dichlorobenzene - was detected in MW-3 at a level below the CRQL. The presence of phenanthrene appears to be possibly due to the shipping and handling process, laboratory contamination, or imprecision in detection at low concentrations (Section 6.5.).

Up to nine Tentatively Identified Compounds (TICs) were also reported for each sample. The TICs are not included in the calibration of the instrument; results should be considered estimates only. Similarly, since no external calibration is performed for TICs, specific detection limits are not available; the concentrations are estimated based on EPA recommended procedures for TIC identification. Concentrations of 2-fluoro-4-nitrophenol, unsaturated hydrocarbon, dimethyl naphthaline, and an unknown were estimated in MW-2. 1,3-Dithiolane, dichlorobenzenamine, chlorodimethyl phenol isomer, alkly substituted hydrocarbon, and five unknown analyte concentrations were estimated in MW-3. One oxygenated compound concentration was estimated in each of the following: MW-6, MW-7, and MW-9.

The gas chromatography/mass spectrometry results for each well sample were examined for the presence of hydroquinone. Hydroquinone was not one of the compounds contained in the Method 625 target analyte list, and therefore was not in the external calibration standards; instead, concentrations would have been estimated against an internal standard. However, no hydroquinone was detected in any well sample above the estimated detection limit of 12  $\mu$ g/L.

Volatiles: 1,1,1-trichlorethane was detected in eight wells and estimated present in one well. Detected concentrations ranged from 5.5  $\mu$ g/L in MW-4 to 13000  $\mu$ g/L in MW-2. 1,1-Dichloroethane was detected in five wells and estimated present in one well. Detected concentrations ranged 8.6  $\mu$ g/L in MW-8 to 110  $\mu$ g/L in MW-3. 1,1-Dichloroethene was detected in four wells and estimated present in three wells. MW-1 contained the lowest detected concentration of 17  $\mu$ g/L and MW-7 contained the highest level at 460  $\mu$ g/L. Chloroform was detected in three wells at concentrations ranging from 6.0  $\mu$ g/L to 12  $\mu$ g/L and estimated present in three wells. MW-6 contained the highest level at 12  $\mu$ g/L. Trichlorethene was detected in three wells and estimated present in two wells. A maximum concentration of 13  $\mu$ g/L was detected in MW-9. Trans-1,2-Dichloroethene was detected at 9.0 µg/L in MW-1 and estimated present in three other wells. Vinyl chloride was detected in MW-3 at 110  $\mu$ g/L and estimated present in three other wells. Chloroethane was detected at 15  $\mu$ g/L in MW-2 and estimated present in two other wells. Benzene was detected at 13  $\mu$ g/L in MW-3. Tetrachloroethane was estimated present in MW-2 and MW-7 and Bromodichloromethane, chlorodibromomethane, toluene, 1,1,2-Trichloroethane and o/pxylene were each estimated present in on well. Chlorobenzene was estimated present in the equipment blank.

The tentatively identified compounds (TICs) hexachlorobutadiene and 1,1,2-trimethyl-1,2,2-trifluoroethane were each estimated present in one well, MW-3 at 90  $\mu$ g/L, and MW-6 at 4.3  $\mu$ g/L, respectively.

Petroleum Hydrocarbons: Seven wells (MW-1, MW-2, MW-4, MW-6, MW-7, MW-8, and MW-9) contained detectable levels of total recoverable petroleum hydrocarbons (TRPH), as analyzed by EPA Method 418.1. The amount reported ranged from 610  $\mu$ g/L to 12,000  $\mu$ g/L. MW-2 contained the highest quantity of petroleum hydrocarbons, with 12,000  $\mu$ g/L. MW-1 contained the lowest detected quantity of petroleum hydrocarbons, with ND (Not Detected) in one sample and 610  $\mu$ g/L in the sample duplicate. Low levels of TRPH appeared to be possibly due to the shipping and handling process, laboratory contamination or imprecision in detection at low concentrations (see Section 6.5).

Formaldehyde: Formaldehyde was detected in six wells MW-1, MW-3, MW-4, MW-5, MW-6, and MW-10. MW-3 contained the highest quantity of formaldehyde, with 260  $\mu$ g/L.

Inorganics: MW-3, MW-6, MW-7 and MW-8 contained total cyanide at concentrations ranging from 0.017 mg/L to 0.24 mg/L. Total silver concentrations ranged from 0.01 mg/L to 0.013 mg/L in MW-4, MW-6, MW-7, and MW-10. MW-1 through MW-7 contained concentrations of total chromium ranging from 0.011 mg/L to 0.093 mg/L. Low levels of total chromium appeared to be possibly due to sampling, the shipping and handling process, laboratory contamination, or imprecision in detection at low concentrations (Section 6.5). Hexavalent chromium was detected in MW-2 and MW-7 at 0.016 mg/L and 0.028 mg/L, respectively.

## 6.3 Pilot Borehole Analytical Results

Table 5 presents the results of the total recoverable hydrocarbon (TRPH) analyses. TRPH was detected in PB-6 at 680  $\mu$ g/L (0.680 mg/L), and was not detected in samples collected from the other five pilot boreholes.

## 6.4 Drilling Cuttings Analytical Results

Table 6 presents the results of the drilling cutting waste disposal characterization. No volatile organics, semivolatile organics, or isobutanol were detected in the cuttings. In addition, analyses indicated the cuttings do not exhibit any hazardous waste characteristics.

## 6.5 Quality Assurance/Quality Control

## Blanks

One equipment blank and one trip blank were collected with the monitoring well samples. Similarly, one equipment blank and one trip blank were collected with the pilot bore and drill cutting samples.

Equipment blank results were intended to indicate if contamination was associated with the sampling, shipping, or handling phases of the project, or with the equipment itself. (Disposable bailers were used for the monitoring well sampling and pilot borehole sampling, so decontamination technique was not a source of possible equipment contamination. Soil boring equipment was steam-cleaned between sample locations, so equipment blank results for pilot borings do not include the effects of any possible soil boring equipment contamination.) Trip blank results indicate whether contamination has occurred due to the shipping and handling phase itself. Method blanks also were analyzed and reported for each analytical method, and indicate if contamination occurred during sample analysis or preparation.

As seen in Table 7, no compounds were detected in any of the method blanks associated with the monitoring well groundwater samples, indicating that laboratory processing did not contribute to sample analyte concentrations. Low concentrations of chlorobenzene and total chromium were detected in the equipment blank collected with the monitoring well samples. Low concentrations of phenanthrene

and TRPH were also detected in the trip blank. The concentrations of chlorobenzene and phenanthrene were less than the laboratory quantitation limits for these compounds; the concentrations of the total chromium and TRPH were just above their respective quantitation limits. It is possible that similar low levels of these compounds may be found in the monitoring well samples; however, no high levels of contamination due to shipping or sampling equipment are indicated by these results.

No contaminants were detected in the blanks collected with the pilot boring samples or the drilling cuttings sample.

## Field Duplicates

One set of field duplicates was collected for the monitoring well samples (MW-1), and one for the pilot boring samples (PB-4). Table 8 presents the results for each duplicate set, along with the Relative Percent Differences (RPDs) for each data set.

The RPDs for the monitoring well duplicate samples indicated good analytical and sample-to-sample precision. All RPD values were less than 10%. In a few cases, the RPD value could not be calculated since one of the duplicate results was ND (Not Detected). This was true for the vinyl chloride, TRPH, and the total chromium analyses. In all these cases, the detected amounts were just above the laboratory quantitation limit; at low levels, this analytical variability may be expected. Furthermore, for TRPH and total chromium, the concentrations of the detected compounds were roughly equal to the concentrations of these same compounds found in the blank samples. These results are indicative of the imprecision in detection of the low level of contaminants seen both in the field duplicate and in the blank samples.

RDP values could not be calculated for the pilot borehole duplicate samples since both of the sample results for TRPH were ND (Not Detected).

Phase2.fnl/g 6-6

# Surrogates

All surrogate recoveries for the semi-volatile analyses were within the specified limits. All but one of the surrogate recoveries for the volatiles analyses were within the specified limits.

Activities have been completed in response to the fuel oil discharge, in accordance with NJDEP procedures required to investigate and initiate corrective actions for a hazardous substance discharge from an underground storage tank system. Reporting Requirements and Immediate Cleanup Requirements were addressed and summarized in a Discharge Investigation and Corrective Action Report (DICAR), authored by CA Rich Consultants, Inc., dated October 3, 1990. Completion of this Phase II Groundwater Investigation and the Final Investigation Report of September 9, 1991, address Discharge Mitigation Requirements.

Soil containing fuel oil in the vicinity of the tanks was excavated by CA Rich Consultants. No visual signs of fuel oil were observed by Radian Corporation in any of the soil or rock cuttings during installation of MW-2 through MW-10. However, fuel oil was noted in water from a perched water zone at MW-2. Similar conditions were noted by CA Rich during installation of MW-1. Pilot boreholes, PB-1 through PB-6, were installed in order to further define the areal extent of fuel oil noted in this perched zone. No visual signs of fuel oil were observed in any of the drilling cuttings or groundwater samples collected from these boreholes. During resampling of MW-2, oil droplets were noted in the water.

Total Recoverable Petroleum Hydrocarbon (TRPH) was detected in PB-6 at 680  $\mu$ g/L (0.680 mg/L) and was not detected in samples collected from the other five pilot boreholes. TRPH concentrations detected in MW-1, MW-2, and MW-7, November 15, 1991 samples, were ND (Not Detected) and 610  $\mu$ g/L (Duplicate), 12,000  $\mu$ g/L, and 1,100  $\mu$ g/L, respectively. The low levels of TRPH detected in PB-6 and MW-1 appear to be possibly due to the shipping and handling process, laboratory contamination, or imprecision in detection at low concentrations. These levels were less than concentrations detected in MW-6, MW-8, and MW-9. MW-6, MW-8, and MW-9 results indicated that up to 5,200  $\mu$ g/L (MW-8) may represent regional groundwater quality.

Elevated concentrations of TRPH were confined to MW-2, where the fuel oil was noted in a perched zone overlying the uppermost bedrock aquifer. The uppermost aquifer in this area is under slightly confined conditions, reducing the potential for vertical migration of the fuel oil.

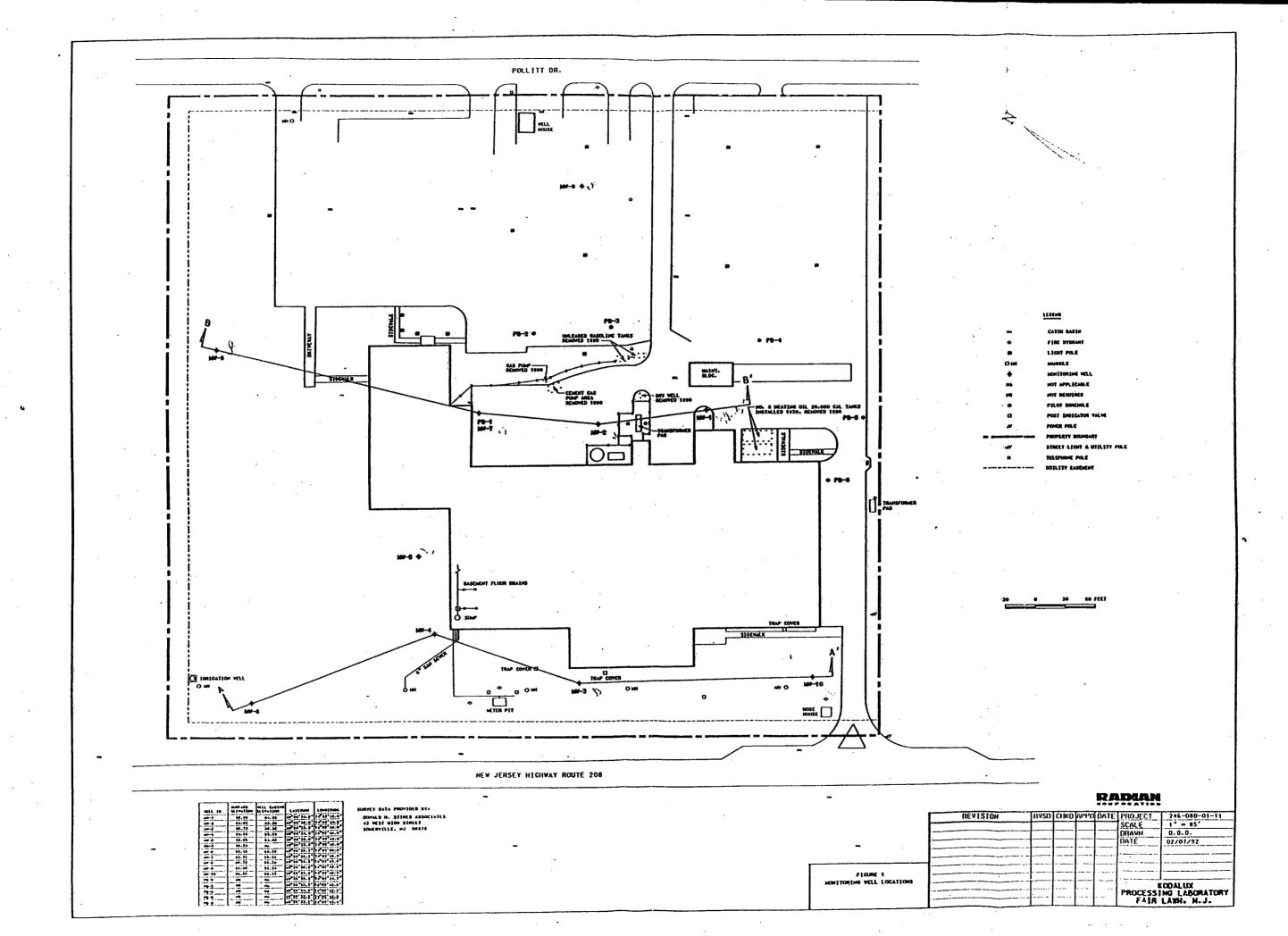
Concentrations of several detected constituents in monitoring well samples exceeded the Federal Drinking Water Standards Maximum Contaminant Level (MCL) and/or the New Jersey MCL (NJMCL) values. Exceedances included:

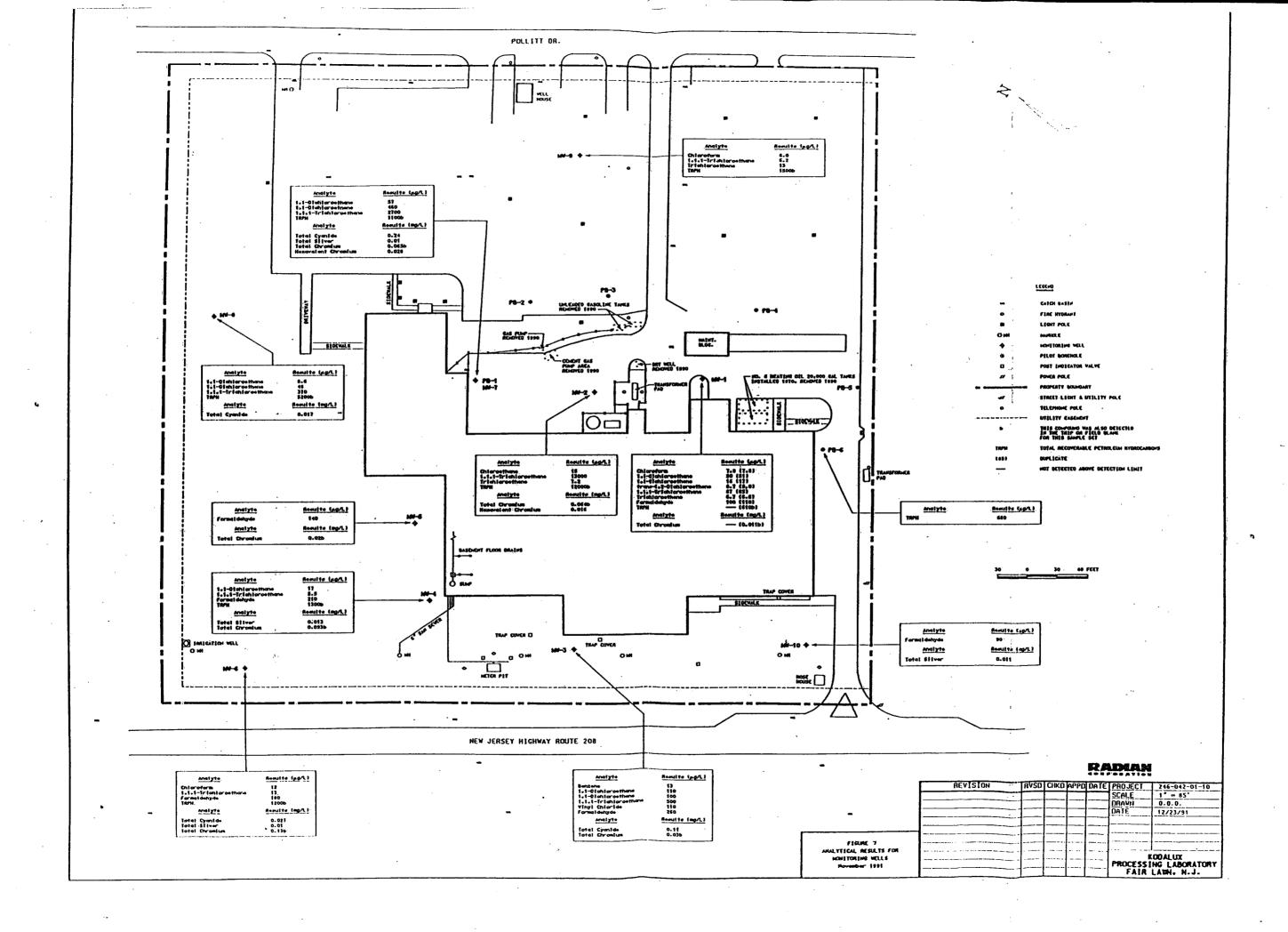
- Benzene in MW-3 at 13  $\mu$ g/L (MCL 5  $\mu$ g/L, 1 NJMCL  $\mu$ g/L);
- 1,1-Dichloroethene in MW-1 at 17  $\mu$ g/L, MW-3 at 100  $\mu$ g/L, MW-7 at 460  $\mu$ g/L, and MW-8 at 46  $\mu$ g/L (MCL 7  $\mu$ g/L, NJMCL 2  $\mu$ g/L);
- 1,1,1-Trichloroethane in MW-1 at 87  $\mu$ g/L, MW-2 at 13,000  $\mu$ g/L, MW-3 at 500  $\mu$ g/L, MW-7 at 2,700  $\mu$ g/L, and MW-8 at 370  $\mu$ g/L (MCL 200  $\mu$ g/L, NJMCL 26  $\mu$ g/L);
- Trichloroethene in MW-1 at 6.7  $\mu$ g/L, MW-2 at 7.2  $\mu$ g/L, and MW-9 at 13  $\mu$ g/L (MCL 5  $\mu$ g/L, NJMCL 1  $\mu$ g/L);
- Vinyl chloride in MW-3 at 100  $\mu$ g/L (MCL 2  $\mu$ g/L, NJMCL 2  $\mu$ g/L); and
- Total Chromium in MW-2 at 0.064 mg/L, MW-4 at 0.093 mg/L, MW-6 at 0.13 mg/L, and MW-7 at 0.065 mg/L (MCL 0.1 mg/L, NJMCL 0.05 mg/L).

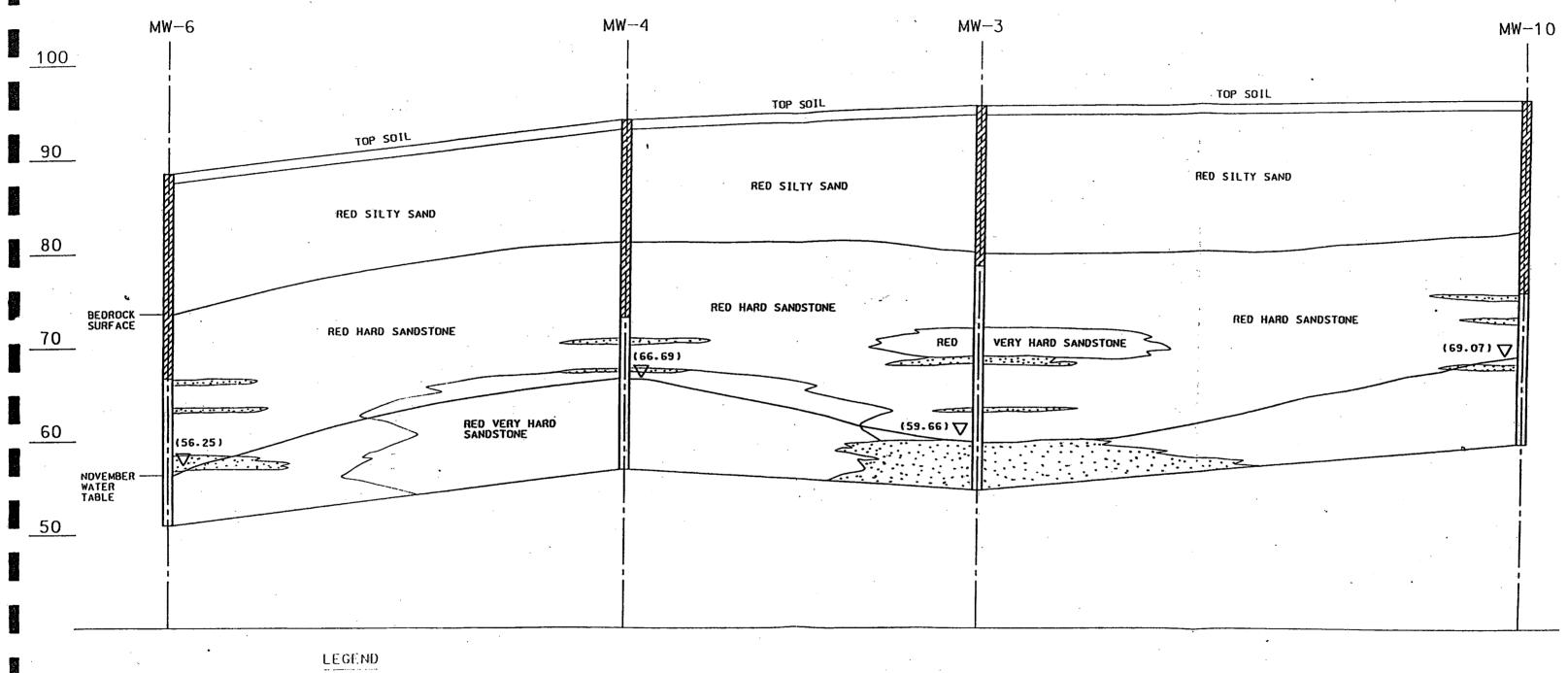
Detected trans-1,2-dichloroethane and total silver concentrations did not exceed MCL or MJMCL values. Chloroethane, chloroform, 1,1-dichloroethane, formaldehyde, petroleum hydrocarbons, total cyanide, and hexavalent chromium do not have MCL or NJMCL values; neither do any of the tentatively identified base-neutral and acid extractable organics or volatile organics.

Cyanide concentrations detected in MW-7 (0.24 mg/L) exceeded the New Jersev groundwater quality criteria of 0.2 mg/L.

**FIGURES** 







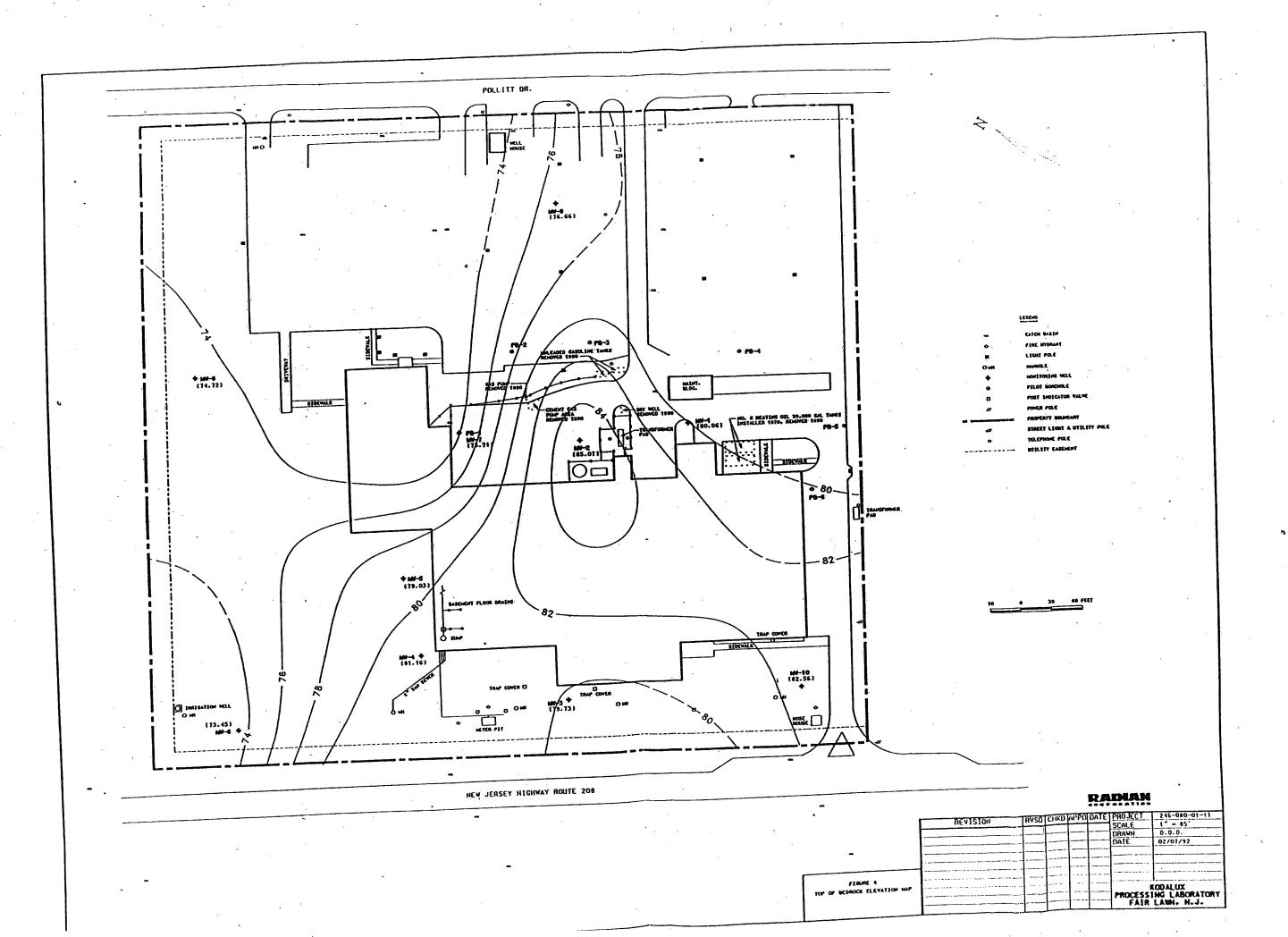
V (56.25) NOVEMBER WATER LEVELS OPEN WELL INTERVAL SOFT SANDSTUNE OR SHALE

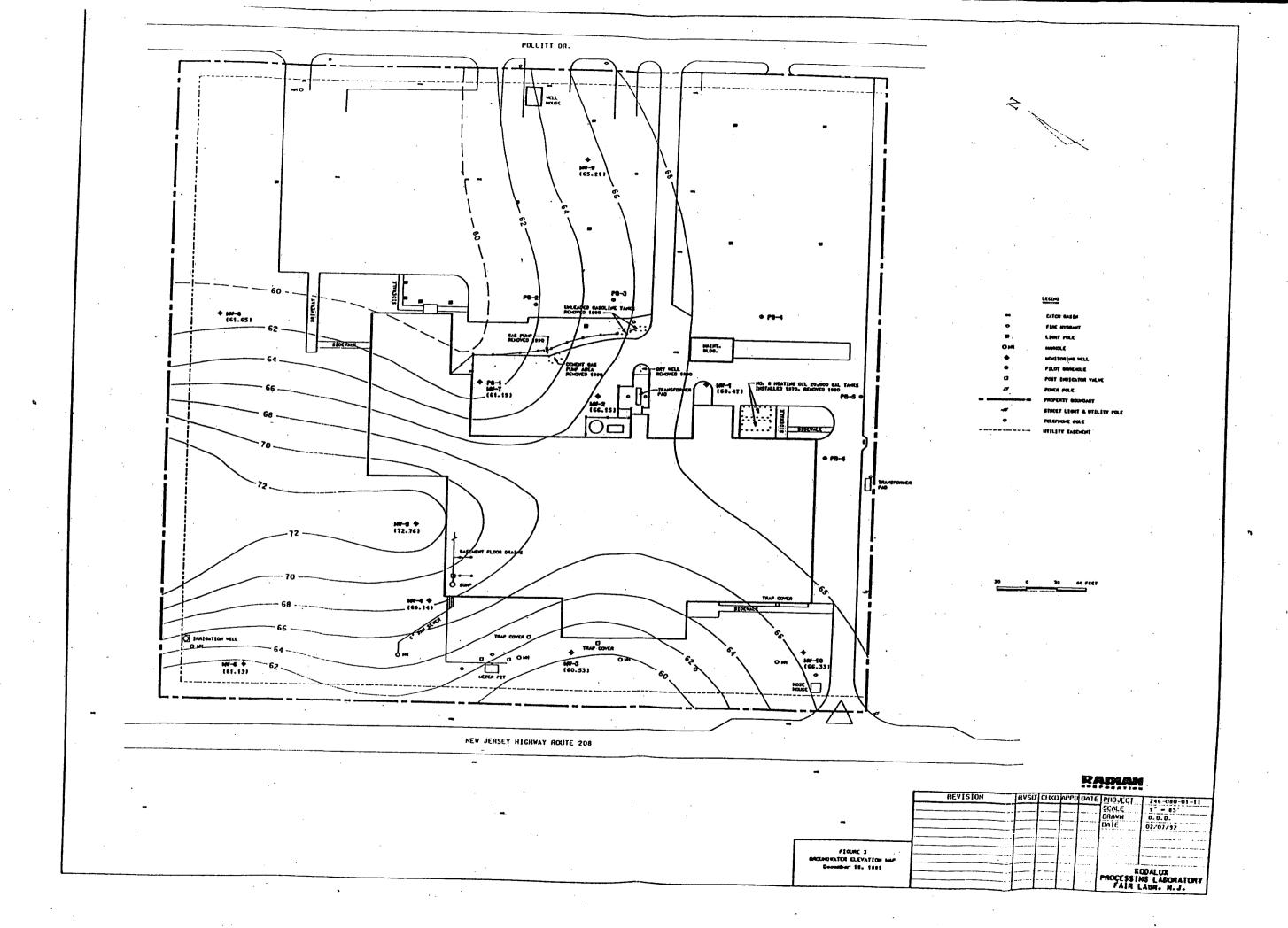
WELL CASING

SECTION A-A'

SCALE: HORIZ. 1'' = 40'VERT. 1'' = 10'

> Figure 5 Section A-A'





**TABLES** 

Table 1
Groundwater Elevation Data

Groundwater Elevation (ft)							
	12/19/91						
	68.47						
	66.15						
	60.53						
	68.14						
	72.76						
	61.13						
	61.19						
	61.65						
	65.21						
	66.33						

Table 2

Field Data for Kodalux Monitoring Wells

Well ID	Depth to Water	Purge Start Time	Purge Stop Time	Vol Purge	рН	Temp °C	Cond. (#S)	Recovery Rate
MW-1	29.45 ft	1347	1353	35 gal	6.5	17, 17, 17	630, 620, 600	medium
MW-2	27.50 ft	1255	1323	25 gal	6.5	18, 18, 18, 18	830, 750, 670. 650	medium
MW-3	35.60 ft	0845	0910	6 gai (dry)	7, 6.5	16, 17	2390, 2400	slow
MW-4	27.90 ft	1020	1025	14 gal (dry)	6.5	16, 16, 17	4060, 4040, 3930	slow
MW-5	23.80 (1	1045	1050	18 gal (dry)	6.5, 6.0, 6.0	16, 17, 17	2020, 1970, 1920	slow
MW-6	31.90 (1	1140	1145	7 gal (dry)	6.5	15, 15	600, 520	slow
MW-7	32.85 ft	1233	1236	5 gal (dry)	7.5	17, 17	410, 340	slow
MW-8	27.65 ft	1120	1127	13 gal (dry)	7.0	13, 14, 14	620, 390, 370	slow
MW-9	27.95 ft	1203	1217	17 gal (dry)	6.5	16, 17, 17	530, 510, 520	slow
MW-10	27,10 ft	0930	1000	16 gai (dry)	7	14	930, 850	slow

### Field Notes:

MW-2 water appeared brownish-clear with oil droplets

MW-4 water appeared brownish-clear

MW-5 water appeared brownish-clear

MW-6 water appeared brownish-clear

MW-7 water appeared clear

MW-8 water appeared clear

MW-9 water appeared brownish-clear

MW-10 water appeared yellowish-clear

(dry) purged to near dryness

Table 3
Organic Compounds Detected in Kodalux Monitoring Wells - November 1991

Analyte	Mahad	Labs	Detection Limit <sup>®</sup> (#g/L)	MW-1	MW-L (DUP)	MW-2	MW-3	MW-4	MW-5		s (##/[2) MW-7	MW-8	MW-9	MW-10	Equipment Blank	Trip Blank	Method Blank
ase - Neutral and Acid xtractable Organics BNAB)	EPA 625	Recra				<del>.</del>	<del></del>	J	· 1		T . T		<u> </u>		· .		·
1,3-Dichlorobenzene		l	14			<u> </u>								•		<u>                                     </u>	<u> </u>
Naphthalenc -	]	·	14	<u> </u>		1p						•				J	<u> </u>
Phenanthrene		<u> </u>	14		•		<u></u>				<u> </u>		<u></u>				
Tentative Identified BNAB Compounds <sup>d</sup>	EPA 625	Recra		<del>,</del>			1				Γ. Ι		T .	T .	T -	T .	·
Unknown (Scan #722)	1	<b>\</b> .	С	<u> </u>		11	<u> </u>					-	-	1.			
2-liluoro-4-Nitrophenol (Scan #746)	1	·	С		•	7.3	-	<u> </u>					<del>  -</del>	<del>  .</del>	<del>  .</del>	+-	-
Unsaturated hydrocarbon (Scan #938)	7		c	•	•	6.3		<u> </u>	ļ		<b> </b> • • •	-	<del>                                     </del>	<del></del>	<del>                                     </del>	<del> </del>	<del>  .</del>
Dimethyl naphthalene isomer (Scan #1053)			С		•	6.4	<u> </u>	<u> </u>	<u> </u>		ļ. <u>.</u>	<u> </u>	-	<del>                                     </del>	<del></del>	<del>                                     </del>	<del></del>
1,3-Dithiolane (Scan	-		С			•	7.1	•	•	<u> </u>	<u> </u>	ļ	<u> </u>				<del> </del>
#525) Dichlorobenzenamine	+		c	1.	•		26	•	•	-	<u> </u>	<u> </u>	ļ -	<u> </u>	<del>-</del>		
isomer (Scan #955)  Chlorodimethyl phenol	-		c	•	1		10	•	•	<u> </u>	•			_	_	_	<del>                                     </del>
isomer (Scan #1017)	-		- c	+		1	8.0			•	<u>  :</u>	<u>                                     </u>		_			
Unknown (Scan #1153)	$\neg$		6	<del></del>	<del>                                     </del>	1.	130				<u> </u>	<u> </u>	<u> </u>	_	<del></del>		
Unknown (Scan #1312) Unknown (Scan #1363)		ì			<del>-  </del>	<del>                                     </del>	6.0	1				<u> </u>	:				

Table 3
(Continued)

										Resul	ls (με/L)			in in the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of			
Analyio	Method	Labs	Detection Limit <sup>®</sup> (Ag/L)	MW-1	MW-1 (DUP)	MW-2	MW-3	MW4	MW-5	MW-6	MW-7	MW-8	MW-9	MW-10	Equipment Blank	'I'rip Blank	Method Blank
Alkyl substituted hydrocarbon (Scan #1456)			c	•	• .	•	12	•	•	•	•	•	•	·	•	-	-
Unknown (Scan #1577)	1		С	-	-		21	-	<u> </u>	•	•	-	<u> </u>	<u> </u>			
Unknown (Scan #1745)			С	•			34	<u> </u>	· ·	•	•		<u> </u>	<u> </u>	<u> </u>	<u> </u>	
Oxygenated Compound (Scan #874)			С	•	•		•	•	•	9.9	•	•	•	<u> </u>	-		
Oxygenated Compound (Scan #872)			С	•	•	•		•		•	6,4	-		·	•	·	,
Oxygenated Compound (Scan #860)			С	•	•	•	•		•	•		•	13	<u> </u>	-	<u> </u>	
Hydroquinone	BPA 8270	Recra	12	•		· transite and		<u> </u>	<u> </u>	<u></u>		<u> </u>	<u> </u>	<u> </u>	<u> </u>	ــــــــــــــــــــــــــــــــــــــ	NA
Volatile Organics	EPA 624	Recra							<del> </del>		·	,		<del></del>	ľ	1	т
Benzene			5.0		•		13	<u>                                     </u>	<u> </u>	<u> </u>	١.	<u>  -</u>	<b> </b> -	<u> </u>	· · ·	ļ	<del> </del>
Bromodichloromethane	7	1	5.0	•		-			<u> </u>	J			<b> </b>	<del> </del>	<u> </u>	<del>                                     </del>	<del>                                     </del>
Chlorobenzene		`	5.0	-					<u>  •                                     </u>	<u> </u>	<u> </u>	-	<del> </del>	<del> </del>	J	<del> </del> -	<del>                                     </del>
Chlorodibromomethane	1		5.0			•	<u> </u>	•		]	<u> </u>	<u> </u>	<b> </b>	<del> </del>		<del> </del>	<u> </u>
Chloroethane -	1		10	J	J	15	J	•	<u> </u>	<u>                                     </u>	<u> </u>	-	<u> </u>	<u> </u>	<u> </u>	ļ <u>.</u>	ļ
Chloroform	1		5.0	7.9	7.8	J	J	<u> </u>		12	]	<u> </u>	6.0	<u> </u>	<u> </u>	<del> </del>	<del> </del>
1,1-Dichloroethane	7		5.0	50	51	J <sup>(1)</sup>	110	17		ļ	57	8.6	<u> </u>	<u> </u>	<u> </u>	<del> </del>	<del> </del>
1,1-Dichloroethene	7		5.0	16	17	J <sup>(1)</sup>	100	J	<u> </u>	<u> </u>	460(3)	46	J	<u> </u>	- <del></del>	- <del>  ·</del>	- <del> </del>
trans-1,2-Dichloroethene	7		5.0	8.7	9.0	J	<u>                                      </u>	<u>.</u>	1	<u> </u>	J	<u> </u>	J	<u> </u>	<u> </u>	<b>┤</b>	<del>  -</del> -
Tetrachloroethene	7		5.0		•	J	<u>                                     </u>	<u> </u>	<u>  -</u>	<u> </u>	<u> </u>	<u> </u>	<b></b>	<u> </u>	ļ	<del>  -</del> -	<del> </del> -
Toluene	7		5.0						1 -		] ]	•	<u> </u>	ــــــــــــــــــــــــــــــــــــــ	·		

District Cod /

Table 3

### (Continued)

			Detection Limit <sup>a</sup>	WV.	MW-1	MW-2	MW-3	MW4			<u>ia (ap/l-)</u> MW-7		MW-9		Equipment Blank	Trip Blank	Method Blank
Analyte 1,1,1-Trichloroethane	Method	Laba	(#g/L) 5.0	87		13000 <sup>(1)</sup>		5.5	•	13	2700 <sup>(3)</sup>	370 <sup>(4)</sup>	6.2	J		•:	
1,1,1° ( Hellich Gethalte														•	•		•
1,1,2-Tricloroethane			5.0	-	•								13				-
Trichioroethene			5.0	6.7	6.6	7.2	J	•	<u> </u>	-	J					<u> </u>	
Vinyl Chloride			10	J	•	J	110	J		· .							
o/p-Xylene			5.0		•	J		<u> </u>	<u> </u>			-	<u> </u>	<u> </u>	<u> </u>	<u></u>	1
Tentatively Identified Volatile Compounds <sup>d</sup>	EPA.624	Recra						,		····		·	r	Γ	· .	Τ.	T .
		<b>[</b>	c			•	90(2)8	<u>  -                                   </u>		<u>                                     </u>		<u> </u>	<u> </u>	<u> </u>	<u> </u>	┼	<del> </del>
Hexachlorobutadiene 1,1,2-Trimethyl-1,2,2-			С	•	•	•	•	•		4.3	•	•					<u> </u>
trifluoroethane	NIOSII	Recra	84	100	110		260	210	140	180		•		90		•	
Formaldehyde	NIOSI I 3500	IVECIA						1	<del> </del>	1	a'anch	5200 <sup>b</sup>	1500 <sup>b</sup>	<del>                                     </del>	<del> </del>	530	1.
Petroleum Hydrocarbons	BPA 418.1	Recra	500	•	610 <sup>b</sup>	12000 <sup>b</sup>	•	1300 <sup>b</sup>		1200 <sup>b</sup>	1 <sup>1</sup> 100 <sup>b</sup>	3210	13/41				<u></u>

- a Detection limits reported are Method Detection Limits (Formaldehyde and Petroleum Hydrocarbons) and Contract Required Quantitation Limits (Organics).
- This compound was also detected in the trip or field blank for this sample set.
- <sup>c</sup> Tentatively identified compound concentratins are estimated based on EPA recommended procedures for TIC identifications.
- Results for tentatively identified compounds are estimated.
- e TIC was found in the dilution of this sample, but not in the undiluted sample.
- J Indicates an estimated value when the mass spectral data indicates the presence of a compound that meets the identification criteria but the result is less than the sample quantitation limit but greater than zero.
- Not detected above the detection limit.

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- (1) Dilution factor 100 versus 1.0; detection limit for this compound will change accordingly.
- (2) Dilution factor 5 versus 1.0; detection limit for this compound will change accordingly.
- (3) Dilution factor 50 versus 1.0; detection limit for this compound will change accordingly.
- (4) Dilution factor 4.0 versus 1.0; detection limit for this compound will change accordingly.
- NA Due to a laboratory oversite sample Method Blank was not analyzed for Hydroquinone.

Table 4 Inorganics Results for Kodalux Monitoring Wells - November 1991

										Resu	lts (mg/L	)					. ,
Analyic	Method	Labs	Detection Limit <sup>a</sup>	MW-1	MW-I (DUP)	MW-2	MW3	MW-4	MW-5	MW-6	MW-7	MW-8	MW-9	MW-10	Equipment Blank	Tylp Blank	Metikal Blank
Total Cyanide	EPA 9010	Recra	0.01	•		-	0.11	-	•	0.027	0.24	0.017	<u>-</u>	·	<u> </u>		·
	EPA 272.1	Recra	0:01				•	0.013	•	0.01	0.01			0.011	•	·	
Total Chromium		Recra	0.01		0.011 <sup>b</sup>	0.064 <sup>b</sup>	0.03 <sup>b</sup>	0.093 <sup>b</sup>	0.02 <sup>b</sup>	0.13 <sup>b</sup>	0,065 <sup>b</sup>	-		<u> </u>	0.016	<u> </u>	<u> </u>
	EPA 7195	Recra	0.01			0.016	•	•		•	0.028	•			-	: NA	·

Analysis performed by Recra Environmental, Inc.

Detection limits reported are Instrument Detection Limits (Metals) and Contract Required Quantitation Limits (Cyanide).

This component was also detected in the trip or equipment blank for this sample set.

Not detected above the detection limit.

NA Due to laboratory oversite, sample Trip Blank was not analyzed for Hexavalent Chromium.

Table 5

## Total Recoverable Petroleum Hydrocarbon Detected in Kodalux Pilot Boreholes - October 1991

Analyte	Method	Lab	Detection Limit <sup>®</sup> (mg/L)	PB-1	PB-2	PB-3		RESULTS PB-4 (DUP)			Trip Blank	Equipment Blank
Total Recoverable Petroleum Hydrocarbons	BPA 418.1	Recra	0.5	•		•	-	•	•	0,68	NA	.•.

Analysis performed by Recra Environmental, Inc.

Detection limits reported are Method Detection Limits.

Not detected above the detection limit.

NA Due to laboratory oversite sample Trip Blank was not analyzed for Total Recoverable Hydrocarbons.

Table 6

Kodalux Drilling Cuttings Waste Characterization Analytical Results - October 1991

				Resul	
Analyte	Method	Lab	Detection Limit <sup>a</sup>	Drilling Cuttings	Trip Blank or TCLP Blank
TCL volatile organics (µg/kg) plus Trichlorofluoromethane and 1,1,2-Trichloro-1,2,2- trifluoroethane	EPA 8240	Recra		· · · · · · · · · · · · · · · · · · ·	
1,1,1-Tricholoroethane			5	J	<u> </u>
PCL semivolatile organics (μg/kg) plus 1,2-dichlorobenzene, nitrobenzene, and pyridine	BPA 8270	Recra	NA	•	NA
Isobutanol (μg/kg)	EPA 8015	Recra	490 <sup>b</sup>		<u> </u>
TCLP Metals (mg/L)		Recra			
Total Arsenic	BPA 7060		0.005	<u> </u>	ļ
Total Barium	BPA 6010	]	0.03	1.0	
Total Cadmium	BPA 6010	1	0.005		•
Total Chromium	BPA 7190		0.01	0.015 <sup>b</sup>	0.017
Total Lead	BPA 7420		0.06	•	•
Total Mercury	EPA 7470	]	0.0004	•	<del> </del>
Total Selenium	EPA 7740	<b>J</b> .	0.005	· · · · · · · · · · · · · · · · · · ·	
Total Silver	BPA 7760		0.01	•	
Ignitability (Flash Point)	EPA 1010	Recra	NA	>200 F	NA
Corrosivity		Recra	NA	7.9 STD uni	NA
Reactivity		Recra			
Total Available Cyanide (Reactivity)	SW-846 7.3.2		NA	•	NA
Total Available Sulfide (Reactivity)	SW-846 7.3.4.1	1	NA	•	NΛ

Analysis performed by Recra Environmental, Inc.

NA Detection Limit was not applicable or sample Trip Blank was not analyzed for this parameter.

a Detection limits reported are Contract Required Quantitation Limits (Organics) and Instrument Detection Limits (Metals).

Detection Limit for isobutanol in the trip blank is 1000 μg/L.

Not detected above the detection limit.

J Indicates an estimated value when the mass spectral data indicates the presence of a compound that meets the identification criteria and the result is less than the sample quantitation limit but greater than zero.

# Table 7 Blank Sample Results<sup>a</sup>

Monitoring Well Groundwater Samples	2.9 $\mu$ g/L Chlorobenzene (J)
Equipment Blank	
	0.016 μg/L Total Chromium
Monitoring Well Groundwater Samples	0.93 µg/L Phenanthrene (J)
Trip Blank	0.53 mg/L TRPH
	0.55 Mg/ 25 22 22
Monitoring Well Groundwater Samples	No compounds detected
Method Blanks	
Pilot Borehole Groundwater Samples	No compounds detected
Blank Equipment	
Drilling Cuttings Sample Trip Blank	No compounds detected

Analyses performed by Recra Environmental, Inc.

a Only analytes detected above detection limits are reported here.

J Indicates an estimated value when the mass spectral data indicates the presence of a compound that meets the identification criteria but the result is less than the sample quantitation limit but greater than zero.

Table 8

### Field Duplicate Results (µg/L)

			Res	elis - mare		
Analyte	MW-1	MW-1 Dup	RPD (%)	PB-4	PB-4 Dup	RPD
Chloroethane	7.5 (J)	7.3 (J)	3	•	-	-
Chloroform	7.9	7.8	1	-	•	ļ-
1,1-Dichloroethane	50	51	2	•	-	-
1,1-Dichloroethene	16	17	6	•	-	•
trans-1,2-Dichloroethane	8.7	9.0	3	•	•	-
1,1,1-Trichloroethane	87	85	2	•	•	-
Trichloroethene	6.7	6.6	2	-	-	-
Vinyl chloride	0.95 (Л)	ND	NC	-	-	•
Formaldehyde	100	110	10	•	•	<u> -</u>
TRPH	ND	610 <sup>b</sup>	NC	ND	ND	NC
Total Chromium	ND	0.011 <sup>b</sup>	NC		-	<u> -</u>

Analysis performed by Recra Environmental, Inc.

- J Estimated value, less than the quantitation limit.
- b This component was detected in the equipment blank for this sample set.
- RPD Relative percent difference determined as the difference between two values, divided by their average, and expressed in
- NC Not calculated, one or both of the values was ND.
- MW Monitoring Well
- PB Pilot Boring.
- ND Not detected above the detection limit.
- Not analyzed.

APPENDIX A

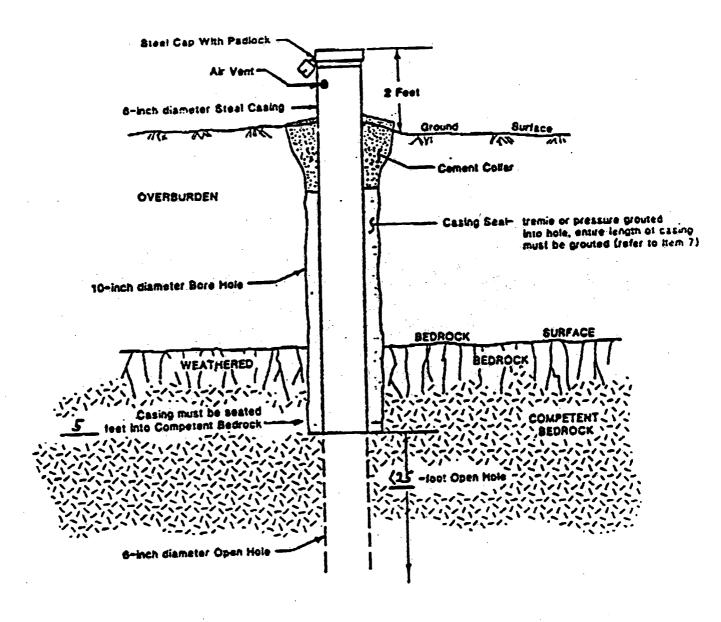
NUDER REDROCK MONITORING WELL SPECIFICATIONS

### BEDROCK FORMATIONS

SITE NAME: KODALHX PLOCESSING LAB

LOCATION: N.J. ROUTE 202, FAIRLANN BERGEN COUNTY

DATE: 12/6/90



NOT TO SCALE

NJGS Revised 9-87

# BEDROCK MONITORING WELL REQUIREMENTS Revised 9/87

- 1. Notification to the NIDEP is required two weeks prior to drilling.
- 2. State well permits are required for each monitoring well constructed by the driller. The well permit tag must be permanently affixed to each monitoring well.
- 3. Copies of the site specific well specifications must be maintained at the drilling site by the driller.
- 4. The monitoring well must be installed by a New Jersey licensed well driller.
- 5. Monitoring well design must conform with NJAC 7:9-7, 8, and 9.
- 6. Drill an oversize borehole a minimum of 4 inches greater than the casing diameter through the overburden and bedrock so that the easing can be sealed into competent rock as indicated in the diagram.
- 7. Acceptable grouting materials are:

Neat Cement - 6 gallons of water per 94 pound bag of cement.

Granular Bentonite - I galion of water per 1.5 pounds of bentonite.

Cement-Bentonite - 8 gallons of water to 5 pounds of bentonite dry mixed per 94 pound bag of cement.

Cement-Bentonite - 10 gallons of water per 8 pounds of bentonite watermixed with a 94 pound bag of cement.

Non-expandable sement - 7.5 gallons of water per 1/2 teaspoon of aluminum hydroxide mixed with 4 pounds of bentonite and 94 pounds of cement.

Non-expandable cement - 7 gallons of water per 1/2 teaspoon of aluminum hydroxide mixed with 94 pounds of cement (Type 1 or Type 11).

- 8. Potable water must be used for mixing grouting materials and drilling fluids.
- 9. Only threaded or welded joints are acceptable as couplings.
- 10. The driller must maintain an accurate written log of all materials encountered, record construction details for each well, and record the depth of water bearing zones. This information must be submitted to the Bureau of Water Allocation as required by N.J.S.A. 58:4A.
- 11. Flush mount monitoring wells are acceptable provided they have manholes, looking saps, and seals to prevent leakage of surface water draw the well.

  (Scald)

- 12. Top of each well casing (excluding cap) must be surveyed to the nearest 0.01 foot by a New Jersey licensed surveyor. The survey point must be marked on each well.
- 13. Wells must be developed to a turbidity-free discharge.
- 14. Modifications to designs are allowed only with NJDEP approval.

Additional Requirements (if checked):	
Rock Core Samples ( )	
Split Spoon Samples (X ) EVERY TWO FEET AT WELLS MW-3, MW-5 AND MW-7	
Borehole Geophysical Logs ( )	_
Dedicated Bailer (Sampter) in Well ( )	

Notice is Hereby Given of the Following:

Other ( ) \_\_\_\_\_

Review by the Department of well locations and depths is limited solely to review for compliance with the law and Department rules.

The Department does not review well locations or depths to ascertain the presence of, nor the potential for, damage to any pipeline, cable, or other structures.

The permittee (applicant) is solely responsible for the safety and adequacy of the design and construction of monitoring well(s) required by the Department.

The permittee (applicant) is solely responsible for any harm or damage to person or property which results from the construction or maintenance of any well; this provision is not intended to relieve third parties of any liabilities or responsibilities which are legally theirs.

APPENDIX B

DRILLING LOGS

				DRIL	LING LO				<u></u>		SHEET 1	
					2. DRELING S	UBCONTR	ACTOR					i
COMPANY N	ME			•	Summi	it Drilling	Ca., Inc.				OF S	PEE 13
Kocsiux			<del></del> -		1	4. LOCATI						
Foir Law	n. NJ						agewater, NJ					i
							ACTURER'S DES	SCNATION	4 OF DROCK			1
NAME OF D	RILLER	<b>!</b>				Мо	sije 80					
Secn				pie 30 - Air Rotory	260	B. HOLE	CCATION	d SECE	ETIC SURVEY	CONTRI		
SIZES AND	TYPE	SOF			<u></u>	فيا	T. 40°56'35	.7": LO	NG. 74° 07'50	.c		
AND SAME	CHO E			" 39 nammer bit		9. SURFA	CE ELEVATION	NJ :	GEODETIC SUR	NEA CC	NTROL	
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		, M10	Roun			S	tatic water i	E 4 E : G : .	CONTRACTS (SBE)	7571		
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4. TOTAL 0		OF H	v.E			1					<del></del>	
				DISTURBED	UNDISTURBED	15	TOTAL NUMB		OKE BOXE2			
18. GEOTEC		SAME	AES.	NA NA	NA.	- 1		ione				21 TOTAL CORE
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•	-		some hard,	red, sandstone fragm	lettra		<u> </u>				Dense	<del>,</del>
	5 -	$\dashv$		•			HNu - N	D	29, 23, 25,	28	ne::se	
81.45		コ							Air Rotary	1		
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l		-					1	-	Air Rotary			
			<u> </u>		<u> </u>		+		Air Rotary			
73.45 Bedrock	15	_	Hard, red s	andstone, fine to me	dium-grained,		<u> </u>			-		
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				e" GD ha	ommer bit				·	STARTED			L DATE CO	MPLETED	
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									15. DEPT	H GROUNDWAT	ER ENCO	UNTERED		•	
OVERBU		HCKNE	55												
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	DEPTH (	OF HO	E						17. OTH€	R WATER LEV	EL MEAS	/14/91 - 30	PECET) mpline); 6:	1.19' (:2/19/5	j1)
	5.7'	-								TOTAL NAME					
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N	one				NA				OTHE	(SPECIFY)	OTHER	(SPECIFY)	OTHER	(SPECFY)	21. TOTAL CORE
. SAMPL	ES FOR	CHEM	CAL ANALYS	15	VOC	┿		TALS	+			NA		NA	RECOVERY
N	one				NA		1	NA		NA			<u> </u>		NA X
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-3 7.	20 -	7													
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							<del>;</del>							and grout After 48 t with 6" ha	in picse. hrs. re-enter mmer bit.
	25 -					· · · · · · · · · · · · · · · · · · ·								and grout After 48 t with 6" ha	in picse. hrs. re-enter mmer bit.
						<u>.</u>								and grout After 48 t with 6" ha	in picse. hrs. re-enter mmer bit.
	25 -													and grout After 48 t with 6" ha	in picse. hrs. re-enter mmer bit.
	25 -													and grout After 48 t with 6" ha	in picse. hrs. re-enter mmer bit.
edrock	25 - 30 -		Hord, red	1 sandstor	ne									and grout After 48 t with 6" ha	in picse. hrs. re-enter mmer bit.
edrock	25 - 30 -		Hord, red		ne									and grout After 48 t with 6" ha	in picse. hrs. re-enter mmer bit.
edrock	25 - 30 -		Hord, red	1 sandstor	ne									and grout After 48 t with 6" ha	in picse. hrs. re-enter mmer bit.
edrock	30 -		Hord, red	1 sandstor	ne									and grout After 48 t with 6" ha	in picse. hrs. re-enter mmer bit.
73.7: ledrock 57.0: Sottom	30 -		Hord, red	1 sandstor	ne		,							and grout After 48 t with 6" ha	in picce. hrs. re-enter
sedrock	30 -		Hord, red	1 sandstor	ne									and grout After 48 t with 6" ha	in place. hrs. re-enter mmer bit.
sedrock	30 -		Hord, red	1 sandstor	ne									and grout After 48 t with 6" ha	in place. hrs. re-enter mmer bit.

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, Тер	1	7	sendstone	fragments								C) 4"
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Kocsiux				4. LOCATIO							
		- <u>-</u>		Bridgewater, NJ							
Fair Lawr. No							OF DRILL				
				6. MANUFACTURER'S DESIGNATION OF DRLL							
NAME OF DRILLER				Mobile 80							
,3ecn		olie 90 - Air Rotory	3-11	8. HOLE LOCATION NJ GEODETIC SURVEY CONTROL							
SIZES AND TYPES OF I				LAT. 40°56'36.9": LONG. 74°07'42.9"  9. SURFACE ELEVATION NJ GEODETIC SURVEY CONTROL							
WD 2VM-CHA Edge	1	00 hammer bit		9. SURFA	E ELEVATION	ИJ	GEODETIC SU	RVEY CON	CIRCL.		
•	2"	OD 24" split spoon	sampler		.66						
	6"	CD hammer bit			STARTED		TL.	DATE COMP	LETED		
					/23/91			10/24/	91		
	-										
				15. DEPTI	GROUNDWAT	ER ENCL	Milesen				
2. OVERBURDEN THICKNE	33			W	ater at 26 t	27			COLGI ET		
15.0'		·		16. DEPTI	TO WATER	WO ELA	PSED THE AFT	ER DRILLING	COMPLET	25 / 011	
3. DEPTH DRALLED INTO	ROCK			St	atic water i	evel at :	27.50' below	top of cas	sing (1972	37.311	
24.9						ET LIEAS	INDIANOUS ISPE	CEY			
4. TOTAL DEPTH OF HO	E	<del></del>		w w	oter Elev: 63	3.29' (11	/14/91 - sam	pling): 65.2	11 (12/19/	91)	
39.9'					TOTAL NAME	FD 05 0	ORE BOXES				
18. GEOTECHNICAL SAMPL	FS .	DISTURBED	UNDISTURBED	19		er or c					
None	±	NA	NA	l_		<u> </u>		OTHER C	SPECSEY)	21 TOTAL CORE	
- ·		yoc	METALS	OTHER	(SPECIFY)	OTHE	R (SPECIFY)	UINZK G		RECOVERY	
20. SAMPLES FOR CHEM	CAL ANALYSIS		2.2		NA	l	NA ·	N	A	NA Z	
None		NA NA	NA	1				-		1	
		BACKFILLED	MONITORING WELL	O∏Æ]	(SPECETY)		NATURE OF IN		,		
22. DISPOSITION OF HOL	E	Dienis arms				>	for my	2.70	oody		
	•	•		İ		10	7	<del></del>	/-	<del>,</del>	
		<u> </u>	<u> </u>					1	21	DIARKS	
		DESCRIPTION OF MA	TERIALS		SOL SCREE		COUNTS	· 1.	, .		
ELEY. DEPTH	*	pesone their or the			RESULT	13			)" Hamme	er bit	
(10)	Black top an	d stone							THE INSTRUCTION OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF THE PARTY OF		
91.66				!			Air Rotary				
Top	Red, sandy s	at .			· ·		1	1			
4 7		a	uith				13, 13, 17, 2	6 0	ense		
5	Red, silty me	edium grained sand \	~ · · · · ·		HNu - N	υ :	10, 10, 17, 2				
	tragments o	f red sandstone		•	ļ —		Air Rotary				
-											
m =	Red silty fin	e to medium graine	d sand with		HNu - N	4D	9, 14, 25, 2	20   0	ense		
-	fragments 0	fred sandstone.					1				
1	Weathered r	ock at 13'			}		Air Rotary				
					<del> </del>		50/0	1	Refusal at	15'	
76.66 15	Here's and as	andstone with thin int	terbeds of		[		30/0	1.			
Becrock	softer rock	(shale?) at 23', 25' a	ind 33'		1.		l l	1			
1   -	20.10. 1000		•				Air Rotary	ļ.,	At 20'- 6'	steel casing	
20 —							1	1.	and grout	in picce.	
, 1 -							ŀ		After 24	hrs. re-enter ommer bit	
1							1	] '	with a un	#11 MIN	
\ \ \ \							1	1			
25 —		•			Ţ .			ł			
1 -							1	1			
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30							1	ļ			
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					1		1	}			
-							1	1			
35 —							1	1			
-								1			
_	1										
51.76 40								1			
Bottom =	Bottom	of hole at 39.9°			ļ			1			
	j						1	1			
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			DIVIL	LING LU		708		<u> </u>		SPEET	î	
				2. DRELING ST	UBCONTRA	TOR				OF T	SHEETS	
CAPANY NU Kadalux	~**E			· · · · · · · · · · · · · · · · · · ·	t Drilling (				<del></del> -			
Recoldx					4. LOCATION	4 gewater, MJ						
Fair Lawr	n. NJ				8. MANUFACTURER'S DESIGNATION OF DRILL							
ME OF D	RILLER			1		Be 80					·	
Secn					2 WY E 10	LOCATION - NO GEODETIC SURVEY CONTROL						
SIZES MO	TYPES OF		obile BS - Air Rotory		LAT	: 42°56'31.	3: FCM	G. 74 °37'45	.3"			
AND SAMPL	UNG EQUIP	1 10	)" II hammer eit		9. SURFAC	E ELEVATION	NJ G	EODETIC SU	RVEY CO	NTROL		
		i	" QB 24" split speen	scmbier	96.							
		5'	" CD nammer bit		10. DATE	STARTED		n.	DATE COM			
					10/	23/91			10/24	/9: <del></del>		
					15. DEPTH	CROUNDWAT	ER ENCOL	MTERED				
OVERBUR	DEN THICK	ESS						,				
14.0			<u></u>		16. DEPTH	TO WATER	AND ELAP	SED THE AFT	ER DRULLIN	G COMPLET	ED 23/99	
	RILLED INTO	ROCK						5.33' below		sing (/.	27.317	
22.					17. OTHER	WATER LEV	EL MEASU	REMENTS (SPI	COFY)	331 /12/13	/91)	
. TOTAL DI 36.	EPTH OF H	IVLE						14/91 - sam				
	MCAL SAM	PLES	DISTURBED	UNDISTURBED	19.	TOTAL NUMBE	R OF CO	HE ROXEZ	-			
8. GEOTECH Nor		-	NA	NA.				(SPECIFY)	OTHER	(SPECIFY)	21 TOTAL CO	
		MCAL MALYSIS	Yoc	METALS	OTHER	CSPECIFY					RECOVERY	
No			NA	NA		IA		ÑA		NA	NA Z	
			BACKFILLED	MONITORING WELL	OTHER	(SPECIFY)	23. SIG	NATURE OF IN	SPECTOR			
22. DISPOST	TION OF H	OLE	BACARILLED				0	لاسمنه	7.77	posty		
					<u> </u>			<u> </u>		<del>/-</del>		
					1	SOL SCREE	NING	BLOW		R	EMARKS	
ELEV.	DEPTH		DESCRIPTION OF MA	TERULS	1	RESULT		COUNTS	5 1			
				· ·								
(10)		Y							_	10" Hamm	er Dit	
96.56		Top soil						Air Rotary		10" Hamm	er pit	
											er bit	
96.56 Top	s —	Dad silty S	and with fragments of			HNu - N		Air Rotary 21, 25, 38,		10" Hamm	er pit	
96.56 Top	5	Dad silty S	and with fragments of ained sandstone						30		er Dit	
96.56 Top	5	Red, silty s red fine gr	ained sandstone			HNu - N	C	21, 25, 38, Air .Rotary	30	Dense	er Dit	
96.56 Top	s —	Red, silty s red fine gr Red, silty s	cand with fragments of				C	21, 25, 38, Air Rotary 12, 20, 21,	30		er Dit	
96.56 Top	-	Red, silty s red fine gr Red, silty s	ained sandstone			HNu - N	C	21, 25, 38, Air .Rotary	30	Dense	er Dit	
96.56 Top	10	Red, silty s red fine gr Red, silty s red fine gr	rained sandstone sand with fragments of rained sandstone	•		HNu - N	C	21, 25, 38, Air Rotary 12, 20, 21,	30	Dense	er bit	
96.56 Top	10	Red, silty s red fine gr Red, silty s red fine gr	ained sandstone and with fragments of rained sandstone sandstone with zones	•		HNu - N	C	21, 25, 38, Air Rotary 12, 20, 21, Air Rotary	30	Dense	er Dit	
96.56 Top	10	Red, silty s red fine gr Red, silty s red fine gr	rained sandstone sand with fragments of rained sandstone	•		HNu - N	C	21, 25, 38, Air Rotary 12, 20, 21, Air Rotary	30	Dense Dense		
96.56 Top	10	Red, silty s red fine gr Red, silty s red fine gr	ained sandstone and with fragments of rained sandstone sandstone with zones	•		HNu - N	C	21, 25, 38, Air Rotary 12, 20, 21, Air Rotary	30	Dense  Dense  At 20'- 6 one ground	" steel casing	
96.56 Top	10	Red, silty s red fine gr Red, silty s red fine gr	ained sandstone and with fragments of rained sandstone sandstone with zones	•		HNu - N	C	21, 25, 38, Air Rotary 12, 20, 21, Air Rotary	30	Dense  Dense  At 20'- 6 one grout	" steel cosin; in picae. hrs. re-enter	
96.56 Top	10	Red, silty s red fine gr Red, silty s red fine gr	ained sandstone and with fragments of rained sandstone sandstone with zones	•		HNu - N	C	21, 25, 38, Air Rotary 12, 20, 21, Air Rotary	30	Dense  Dense  At 20'- 6 one grout	" steel casing	
96.36 Top	15	Red, silty s red fine gr Red, silty s red fine gr	ained sandstone and with fragments of rained sandstone sandstone with zones	•		HNu - N	C	21, 25, 38, Air Rotary 12, 20, 21, Air Rotary	30	Dense  Dense  At 20'- 6 one grout	" steel cosin; in picae. hrs. re-enter	
96.56 Top	10	Red, silty s red fine gr Red, silty s red fine gr	ained sandstone and with fragments of rained sandstone sandstone with zones	•		HNu - N	C	21, 25, 38, Air Rotary 12, 20, 21, Air Rotary	30	Dense  Dense  At 20'- 6 one grout	" steel cosin; in picae. hrs. re-enter	
96.56 Top	15	Red, silty s red fine gr Red, silty s red fine gr	ained sandstone and with fragments of rained sandstone sandstone with zones	•		HNu - N	C	21, 25, 38, Air Rotary 12, 20, 21, Air Rotary	30	Dense  Dense  At 20'- 6 one grout	" steel cosin; in picae. hrs. re-enter	
96.56 Top	15	Red, silty s red fine gr Red, silty s red fine gr	ained sandstone and with fragments of rained sandstone sandstone with zones	•		HNu - N	C	21, 25, 38, Air Rotary 12, 20, 21, Air Rotary	30	Dense  Dense  At 20'- 6 one grout	" steel cosin; in picae. hrs. re-enter	
96.56 Top	10	Red, silty s red fine gr Red, silty s red fine gr	ained sandstone and with fragments of rained sandstone sandstone with zones	•		HNu - N	C	21, 25, 38, Air Rotary 12, 20, 21, Air Rotary	30	Dense  Dense  At 20'- 6 one grout	" steel cosin; in picae. hrs. re-enter	
96.56 Top	10	Red, silty s red fine gr Red, silty s red fine gr	ained sandstone and with fragments of rained sandstone sandstone with zones	•		HNu - N	C	21, 25, 38, Air Rotary 12, 20, 21, Air Rotary	30	Dense  Dense  At 20'- 6 one grout	" steel cosin; in picae. hrs. re-enter	
96.56 Top 82.56 Bedrock	10	Red, silty s red fine gr Red, silty s red fine gr	ained sandstone and with fragments of rained sandstone sandstone with zones	•		HNu - N	C	21, 25, 38, Air Rotary 12, 20, 21, Air Rotary	30	Dense  Dense  At 20'- 6 one grout	" steel cosing in picae. hrs. re-enter	
96.56 Top 82.56 Bedrock	10	Red, silty s red fine gr  Red, silty s red fine gr  Hard, red s (shaje?) at	rained sandstone sand with fragments of rained sandstone sandstone with zones 20.5', 23', and 28'	•		HNu - N	C	21, 25, 38, Air Rotary 12, 20, 21, Air Rotary	30	Dense  Dense  At 20'- 6 one grout	" steel cosin; in picae. hrs. re-enter	
96.56 Top 82.56 Betrock	10	Red, silty s red fine gr  Red, silty s red fine gr  Hard, red s (shaje?) at	ained sandstone and with fragments of rained sandstone sandstone with zones	•		HNu - N	C	21, 25, 38, Air Rotary 12, 20, 21, Air Rotary	30	Dense  Dense  At 20'- 6 one grout	" steel cosin; in picae. hrs. re-enter	
96.56 Top 82.56 Becrock	10	Red, silty s red fine gr  Red, silty s red fine gr  Hard, red s (shaje?) at	rained sandstone sand with fragments of rained sandstone sandstone with zones 20.5', 23', and 28'	•		HNu - N	C	21, 25, 38, Air Rotary 12, 20, 21, Air Rotary	30	Dense  Dense  At 20'- 6 one grout	" steel cosin; in picae. hrs. re-enter	
96.56 Top 82.56 Becrock	10	Red, silty s red fine gr  Red, silty s red fine gr  Hard, red s (shaje?) at	sand with fragments of rained sandstone sandstone with zones 20.5', 23', and 28'	•		HNu - N	C	21, 25, 38, Air Rotary 12, 20, 21, Air Rotary	30	Dense  Dense  At 20'- 6 one grout	" steel cosin; in picae. hrs. re-enter	
96.56 Top 82.56 Becrock	10	Red, silty s red fine gr  Red, silty s red fine gr  Hard, red s (shaje?) at	sand with fragments of rained sandstone sandstone with zones 20.5', 23', and 28'	•		HNu - N	C	21, 25, 38, Air Rotary 12, 20, 21, Air Rotary	30	Dense  Dense  At 20'- 6 one grout	" steel cosin; in picae. hrs. re-enter	
96.56 Top 82.56 Becrock	10	Red, silty s red fine gr  Red, silty s red fine gr  Hard, red s (shaje?) at	sand with fragments of rained sandstone sandstone with zones 20.5', 23', and 28'	•		HNu - N	C	21, 25, 38, Air Rotary 12, 20, 21, Air Rotary	30	Dense  Dense  At 20'- 6 one grout	" steel cosin; in picae. hrs. re-enter	

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Company Name					DRII	LING LU	G				<u> </u>	1 -	B-Z
Content NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   Court NAME   C					Divic	2. DRELING	UBCONTR	ACTOR			<u></u>		1
Services    Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services   Services						Summ	t Drilling	Cs., inc.				OF 1	SHEETS
Record Freezo of Designer  Sent AND Swerland Couperant  AND Swerland Ecoperant  AND Swerland Ecoperant  AND Swerland Ecoperant  Sent 31 terminer bit  CT CD 24" soil species screened  Sent 32 terminer bit  CT CD 24" soil species screened  Sent 32 terminer bit  CT CD 24" soil species screened  Sent 32 terminer bit  CT CD 24" soil species  Sent 32 terminer bit  Sent 32 terminer bit  Sent 32 terminer bit  Sent 32 terminer bit  Sent 32 terminer bit  Sent 32 terminer bit  Sent 34 terminer bit  Sent 34 terminer bit  Sent 34 terminer bit  Sent 34 terminer bit  Sent 34 terminer bit  Sent 35 terminer bit  Sent 35 terminer bit  Sent 35 terminer bit  Sent 35 terminer bit  Sent 35 terminer bit  Sent 35 terminer bit  Sent 35 terminer bit  Sent 35 terminer bit  Sent 35 terminer bit  Sent 35 terminer bit  Sent 35 terminer bit  Sent 35 terminer bit  Sent 35 terminer bit  Sent 35 terminer bit  Sent 35 terminer bit  Sent 35 terminer bit  Sent 35 terminer bit  Sent 35 terminer bit  Sent 35 terminer bit  Sent 35 terminer bit  Sent 35 terminer bit  Sent 35 terminer bit  Sent 35 terminer bit  Sent 35 terminer bit  Sent 35 terminer bit  Sent 35 terminer bit  Sent 35 terminer bit  Sent 35 terminer bit  Sent 35 terminer bit  Sent 35 terminer bit  Sent 35 terminer bit  Sent 35 terminer bit  Sent 35 terminer bit  Sent 35 terminer bit  Sent 35 terminer bit  Sent 35 terminer bit  Sent 35 terminer bit  Sent 35 terminer bit  Sent 35 terminer bit  Sent 35 terminer bit  Sent 35 terminer bit  Sent 35 terminer bit  Sent 35 terminer bit  Sent 35 terminer bit  Sent 35 terminer bit  Sent 35 terminer bit  Sent 35 terminer bit  Sent 35 terminer bit  Sent 35 terminer bit  Sent 35 terminer bit  Sent 35 terminer bit  Sent 35 terminer bit  Sent 35 terminer bit  Sent 35 terminer bit  Sent 35 terminer bit  Sent 35 terminer bit  Sent 35 terminer bit  Sent 35 terminer bit  Sent 35 terminer bit  Sent 35 terminer bit  Sent 35 terminer bit  Sent 35 terminer bit  Sent 35 terminer bit  Sent 35 terminer bit  Sent 35 terminer bit  Sent 35 terminer bit  Sent 35 termi													ļ
### MANUAL TOPICS OF DRILLING   Models 50 - AV Ratory Drill   AVERAGE NOTIFIES OF DRILLING   Models 50 - AV Ratory Drill   ST 02 hommer 511   A. NACE STAND   A. NACE STAND   A. NACE STAND   A. NACE STAND   A. NACE STAND   A. NACE STAND   A. NACE STAND	3. Fair Lav	wn, No								N OF DRILL			
AND SAMPLED OF DRILLING AND SAMPLING EXPERIENT  SO TO harmost fill  CT CC 24" soit about some somes*  1. A. ACRES AND LONG FOR SAMPLE  SO TO harmost fill  CT CC 24" soit about some somes*  1. A. ACRES AND LONG FOR CAPETION  Not Natural EXPERIENCE SLAVEY CONTROL  Not National Transport Traceses  1. DOPTH DRILLID NTO ROCK  1. DOPTH DRILLID NTO ROCK  1. DOPTH DRILLID NTO ROCK  1. DOPTH DRILLID NTO ROCK  1. DOPTH DRILLID NTO ROCK  1. DOPTH OF HOLE  3.6.0"  1. GOTTERNAL SAMPLES  NA  NA  NA  NA  NA  NA  NA  NA  NA  N	NAME OF	DRILLER					V.s	reise ES					
SUBSTRICT COMMENT  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT STATE  TO DEPOSIT		_					. 40 5	CATION	NU GEO!	SETIC SURVE	Y CONTRO		
PL OVERSUSCENT THROUGHTS  12. OVERSUSCENT THROUGHTS  13.07  13.07  14. DOTT DRILLD INTO ROCK  13.07  15. DOTT DRILLD INTO ROCK  15.07  15. DOTT DRILLD INTO ROCK  15.07  15. DOTT DRILLD INTO ROCK  15.07  15. DOTT DRILLD INTO ROCK  15.07  16. TOTAL EXPTH OF ROLE  16. TOTAL EXPTH OF ROLE  16. TOTAL EXPTH OF ROLE  16. TOTAL EXPTH OF ROLE  16. TOTAL EXPTH OF ROLE  16. TOTAL EXPTH OF ROLE  16. TOTAL EXPTH OF ROLE  16. TOTAL EXPTH OF ROLE  16. TOTAL EXPTH OF ROLE  16. TOTAL EXPTH OF ROLE  16. TOTAL EXPTH OF ROLE  16. TOTAL EXPTH OF ROLE  16. TOTAL EXPLISION OF LINES  17. OTHER WATER LEVEL MEASUREMENTS CONCEPT)  18. TOTAL MARKED OF CORE BOXES  18. TOTAL MARKED OF CORE BOXES  18. TOTAL EXPLISION OF LINES  18. TOTAL MARKED OF CORE BOXES  18. TOTAL MARKED OF CORE BOXES  18. TOTAL MARKED OF CORE BOXES  18. TOTAL MARKED OF CORE BOXES  18. TOTAL MARKED OF CORE BOXES  18. TOTAL MARKED OF CORE BOXES  18. TOTAL MARKED OF CORE BOXES  18. TOTAL MARKED OF CORE BOXES  18. TOTAL MARKED OF CORE BOXES  18. TOTAL MARKED OF CORE BOXES  18. TOTAL MARKED OF CORE BOXES  18. TOTAL MARKED OF CORE BOXES  18. TOTAL MARKED OF CORE BOXES  18. TOTAL MARKED OF CORE BOXES  18. TOTAL MARKED OF CORE BOXES  18. TOTAL MARKED OF CORE BOXES  18. TOTAL MARKED OF CORE BOXES  18. TOTAL MARKED OF CORE BOXES  18. TOTAL MARKED OF CORE BOXES  18. TOTAL MARKED OF CORE BOXES  18. TOTAL MARKED OF CORE BOXES  18. TOTAL MARKED OF CORE BOXES  18. TOTAL MARKED OF CORE BOXES  18. TOTAL MARKED OF CORE BOXES  18. TOTAL MARKED OF CORE BOXES  18. TOTAL MARKED OF CORE BOXES  18. TOTAL MARKED OF CORE BOXES  18. TOTAL MARKED OF CORE BOXES  19. TOTAL MARKED OF CORE BOXES  19. TOTAL MARKED OF CORE BOXES  19. TOTAL MARKED OF CORE BOXES  19. TOTAL MARKED OF CORE BOXES  19. TOTAL MARKED OF CORE BOXES  19. TOTAL MARKED OF CORE BOXES  19. TOTAL MARKED OF CORE BOXES  19. TOTAL MARKED OF CORE BOXES  19. TOTAL MARKED OF CORE BOXES  19. TOTAL MARKED OF CORE BOXES  19. TOTAL MARKED OF CORE BOXES  19. TOTAL MARKED OF CORE BOXES  19. TOTAL MARKED OF CORE BOXES  19. TOTAL MARKED OF CORE BOX	7. SIZES AN	O TYPES O	F DRILLING			Drill	·_ &	T 42°56'36	.2":	NG. 14" Line	,		
No. Westured  12. OVERSLADED TRICORES  12. DATE STARTED  13. DETTY RECOMPLETED  15. DETTY RECOMPLETED  15. DETTY RECOMPLETED  15. DETTY RECOMPLETED  15. DETTY RECOMPLETED  15. DETTY RECOMPLETED  15. DETTY RECOMPLETED  15. DETTY RECOMPLETED  15. DETTY RECOMPLETED  15. DETTY RECOMPLETED  15. DETTY RECOMPLETED  15. DETTY RECOMPLETED  15. DETTY RECOMPLETED  15. DETTY RECOMPLETED  15. DETTY RECOMPLETED  16. DETTY RECOMPLETED  16. DETTY RECOMPLETED  16. DETTY RECOMPLETED  16. DETTY RECOMPLETED  16. DETTY RECOMPLETED  16. DETTY RECOMPLETED  16. DETTY RECOMPLETED  16. DETTY RECOMPLETED  16. DETTY RECOMPLETED  16. DETTY RECOMPLETED  16. DETTY RECOMPLETED  16. DETTY RECOMPLETED  16. DETTY RECOMPLETED  16. DETTY RECOMPLETED  16. DETTY RECOMPLETED  16. DETTY RECOMPLETED  17. DETTY RECOMPLETED  18. DETTY RECOMPLETED  18. DETTY RECOMPLETED  18. DETTY RECOMPLETED  19. DETTY RECOMPLETED  19. DETTY RECOMPLETED  19. DETTY RECOMPLETED  19. DETTY RECOMPLETED  19. DETTY RECOMPLETED  19. DETTY RECOMPLETED  19. DETTY RECOMPLETED  19. DETTY RECOMPLETED  19. DETTY RECOMPLETED  19. DETTY RECOMPLETED  19. DETTY RECOMPLETED  19. DETTY RECOMPLETED  19. DETTY RECOMPLETED  19. DETTY RECOMPLETED  19. DETTY RECOMPLETED  19. DETTY RECOMPLETED  19. DETTY RECOMPLETED  19. DETTY RECOMPLETED  19. DETTY RECOMPLETED  19. DETTY RECOMPLETED  19. DETTY RECOMPLETED  19. DETTY RECOMPLETED  19. DETTY RECOMPLETED  19. DETTY RECOMPLETED  19. DETTY RECOMPLETED  19. DETTY RECOMPLETED  19. DETTY RECOMPLETED  19. DETTY RECOMPLETED  19. DETTY RECOMPLETED  19. DETTY RECOMPLETED  19. DETTY RECOMPLETED  19. DETTY RECOMPLETED  19. DETTY RECOMPLETED  19. DETTY RECOMPLETED  19. DETTY RECOMPLETED  19. DETTY RECOMPLETED  19. DETTY RECOMPLETED  19. DETTY RECOMPLETED  19. DETTY RECOMPLETED  19. DETTY RECOMPLETED  19. DETTY RECOMPLETED  19. DETTY RECOMPLETED  19. DETTY RECOMPLETED  19. DETTY RECOMPLETED  19. DETTY RECOMPLETED  19. DETTY RECOMPLETED  19. DETTY RECOMPLETED  19. DETTY RECOMPLETED  19. DETTY RECOMPLETED  19. DETTY RECOMPLETED  19. DETTY RECOMPLETED  19. DETTY R	WD 2	PUNG EGOS				e combie!	9. SURFA	CE ELEVATION	NJ	SECRETIC SU	RVEY CC:	VTRCL	
IL DUPENBURDY THROUGHS  15. DEPTH BRUILD NTO BOCK 15. DEPTH BRUILD NTO BOCK 15. DEPTH BRUILD NTO BOCK 17. OTHER WATER AND ELVES THE AFTER DELLING COMPLETED 18. DEPTH OF MALE 35.0' 19. TOTAL BEPTH OF MALE 35.0' 19. TOTAL BEPTH OF MALE 35.0' 19. STUMBED NA NA BARDESHESS NA NA STEAM OF SECRETY 19. STUMBED NA NA NA NA NA NA NA NA NA NA NA NA NA			ļ	<u> </u>	74. 2016 2000	33.1.5.0							
13. OF PRINCIPIES  13. OF STATE AND RECOVERS  13. OF STATE AND RECOVERS  13. OF STATE AND REPORT OF MALE AND ELPSED THE AFTER DRILING COMPLETED  13. OF THE AND ELPSED THE AFTER DRILING COMPLETED  13. OF THE AND ELPSED THE AFTER DRILING COMPLETED  14. DEPTH OF MALE  15. OF THE AND ELPSED THE AFTER DRILING COMPLETED  15. OF THE AND ELPSED THE AFTER DRILING COMPLETED  16. OF THE AND ELPSED THE AFTER DRILING COMPLETED  17. OTHER MATERIAL ELPSE, MEASUREDERS SPECIFY)  18. OF THE AND AND AND AND AND AND AND AND AND AND			<u> </u>							n			
TO DEPTH DRULED INTO ROCK  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.0°  13.			ł	<del>-</del> _						NACTEDED.	10. 23.		
13. DEPTH DRILED NTO ROCK  18.0°  19. DEPTH OF NOLE  3.6.0°  19. OTHER WAITE LEVEL MEASUREMENTS CEPECFY)  19. OTHER WAITE LEVEL MEASUREMENTS CEPECFY)  19. OTHER WAITE LEVEL MEASUREMENTS CEPECFY)  19. OTHER WAITE LEVEL MEASUREMENTS CEPECFY)  19. OTHER WAITE LEVEL MEASUREMENTS CEPECFY)  19. OTHER SPECTR CEDECAL AMALYSIS  None  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA  10. NA	12. OVERBLE	ROEN THICK	NESS							JUNI ERED			
Not Measured   Not Measured   Not Measured   13.0"   14.10TAL REPTH OF NOLE   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"   15.0"			•				3 SEPT	U. TO WATER	NO ELA	PSED THE AF	ER DRILLING	COMPLET	ED .
14. TOTAL DEPTH OF HOLE  15.0.  19. GEOTECHARCAL SAMPLES NAN NAN NAN NA NA NA NA NA NA NA NA NA	13. DEPTH I	DRELLED INT	O ROCK										
14. TOTAL DEPTH OF MOLE  15.00  19. GEOTECHARCAL SAMPLES NA  NA  NA  NA  NA  NA  NA  NA  NA  NA							17. OTH	R WATER LEV	EL NEAS	UREMENTS (SP	ECIFY)		
B. COTECNACAL SMAPLES None  NA  NA  NA  NA  NA  NA  NA  NA  NA  N			HOLE				-						
None  NA  NA  NA  NA  NA  NA  NA  NA  NA  N				—т	DISTURBED		19			ORE BOXES			
20. SAMPLES FOR CHEMICAL AMALYSIS  None  NA  NA  NA  NA  NA  NA  NA  NA  NA  N			PLES			NA NA	·		-		OBSE #	SDELIEV)	21 TOTAL CORE
22. DISPOSITION OF HOLE Abandoned with grout  DESCRIPTION OF MATERIALS  SOIL SCREENING RESULTS  SOIL SCREENING RESULTS  SOIL SCREENING RESULTS  Air Rotary  Air Rotary  Sondy silt with clay  Red sandy silt with clay, with some rock fragments  Red sandy silt with clay, with some rock fragments  Description of materials  Red sandy silt with clay  Air Rotary  Air Rotary  Air Rotary  Air Rotary  Passible water zana  Bedrack  Description of hore at 36.0'  Bestiam of hore at 36.0'  Bestiam of hore at 36.0'  Bestiam of hore at 36.0'  Bestiam of hore at 36.0'  Bestiam of hore at 36.0'  Bestiam of hore at 36.0'  Bestiam of hore at 36.0'  Bestiam of hore at 36.0'  Bestiam of hore at 36.0'  Bestiam of hore at 36.0'  Bestiam of hore at 36.0'  Bestiam of hore at 36.0'  Bestiam of hore at 36.0'  Bestiam of hore at 36.0'  Bestiam of hore at 36.0'  Bestiam of hore at 36.0'  Bestiam of hore at 36.0'  Bestiam of hore at 36.0'  Bestiam of hore at 36.0'  Bestiam of hore at 36.0'  Bestiam of hore at 36.0'  Bestiam of hore at 36.0'  Bestiam of hore at 36.0'  Bestiam of hore at 36.0'  Bestiam of hore at 36.0'  Bestiam of hore at 36.0'  Bestiam of hore at 36.0'  Bestiam of hore at 36.0'  Bestiam of hore at 36.0'  Bestiam of hore at 36.0'  Bestiam of hore at 36.0'  Bestiam of hore at 36.0'  Bestiam of hore at 36.0'  Bestiam of hore at 36.0'  Bestiam of hore at 36.0'  Bestiam of hore at 36.0'  Bestiam of hore at 36.0'  Bestiam of hore at 36.0'  Bestiam of hore at 36.0'  Bestiam of hore at 36.0'  Bestiam of hore at 36.0'  Bestiam of hore at 36.0'  Bestiam of hore at 36.0'  Bestiam of hore at 36.0'  Bestiam of hore at 36.0'  Bestiam of hore at 36.0'  Bestiam of hore at 36.0'  Bestiam of hore at 36.0'  Bestiam of hore at 36.0'  Bestiam of hore at 36.0'  Bestiam of hore at 36.0'  Bestiam of hore at 36.0'  Bestiam of hore at 36.0'  Bestiam of hore at 36.0'  Bestiam of hore at 36.0'  Bestiam of hore at 36.0'  Bestiam of hore at 36.0'  Bestiam of hore at 36.0'  Bestiam of hore at 36.0'  Bestiam of hore at 36.0'  Bestiam of hore at 36.0'  Bestia			DACK ANALY	rSIS	YOC	WETALS	OTHE	(SPECIFY)	OTHE	K (ZPECIFY)			RECOVERY
22. DISPOSITION OF NOILE Abandoned with grout  DESCRIPTION OF MATERIALS  SOL SCREENING REMARKS  REMARKS  REMARKS  REMARKS  REMARKS  REMARKS  REMARKS  REMARKS  REMARKS  REMARKS  REMARKS  REMARKS  REMARKS  REMARKS  REMARKS  REMARKS  REMARKS  REMARKS  REMARKS  REMARKS  REMARKS  REMARKS  REMARKS  REMARKS  REMARKS  REMARKS  REMARKS  REMARKS  REMARKS  REMARKS  REMARKS  REMARKS  REMARKS  REMARKS  REMARKS  REMARKS  REMARKS  REMARKS  Air Rotary  Air Rotary  Air Rotary  Air Rotary  Red sandy silt with clay, with some rock fragments  12. 9, 10, 8  Hard red sandstone with zones of softer rock of 19°, 21°, 28°, and 31°.  Possible water zone  Bettern of here et 36.0° 1.				Ī	NA	NA	Ì	NA				A	NA Z
22. DISPOSITION OF HOLE Abandoned with grout  DESCRIPTION OF MATERIALS  SOIL SCREENING RESULTS  RECORDS  Air Rotery  Air Rotery  Sendy silt with some clay  Sendy silt with clay  Red sandy silt with clay, with some rock fragments  Red sandy silt with clay, with some rock fragments  12. 9, 10, 3  Hard red sandstone with zones of softer rock at 19', 21', 28', and 31'.  Bestion of hole at 36.9'  Battern of hole at 36.9'  Battern of hole at 36.9'  Battern of hole at 36.9'  Battern of hole at 36.9'  Battern of hole at 36.9'  Battern of hole at 36.9'  Battern of hole at 36.9'  Battern of hole at 36.9'  Battern of hole at 36.9'  Battern of hole at 36.9'  Battern of hole at 36.9'  Battern of hole at 36.9'  Battern of hole at 36.9'  Battern of hole at 36.9'  Battern of hole at 36.9'  Battern of hole at 36.9'  Battern of hole at 36.9'  Battern of hole at 36.9'  Battern of hole at 36.9'  Battern of hole at 36.9'  Battern of hole at 36.9'  Battern of hole at 36.9'  Battern of hole at 36.9'  Battern of hole at 36.9'  Battern of hole at 36.9'  Battern of hole at 36.9'  Battern of hole at 36.9'  Battern of hole at 36.9'  Battern of hole at 36.9'  Battern of hole at 36.9'  Battern of hole at 36.9'  Battern of hole at 36.9'  Battern of hole at 36.9'  Battern of hole at 36.9'  Battern of hole at 36.9'  Battern of hole at 36.9'  Battern of hole at 36.9'  Battern of hole at 36.9'  Battern of hole at 36.9'  Battern of hole at 36.9'  Battern of hole at 36.9'  Battern of hole at 36.9'  Battern of hole at 36.9'  Battern of hole at 36.9'  Battern of hole at 36.9'  Battern of hole at 36.9'  Battern of hole at 36.9'  Battern of hole at 36.9'  Battern of hole at 36.9'  Battern of hole at 36.9'  Battern of hole at 36.9'  Battern of hole at 36.9'  Battern of hole at 36.9'  Battern of hole at 36.9'  Battern of hole at 36.9'  Battern of hole at 36.9'  Battern of hole at 36.9'  Battern of hole at 36.9'  Battern of hole at 36.9'  Battern of hole at 36.9'  Battern of hole at 36.9'  Battern of hole at 36.9'  Battern of hole at 36.9'  Battern of ho			· 			MONTORING WELL	OTHE	R (SPECETY)	23. Si	GNATURE OF IN	SPECTOR	,	
ELEV. DEPTH DESCRIPTION OF MATERIALS SOIL SCREENING COUNTS REMAINS  Air Rotary  Sandy silt with clay  Red sandy silt with clay, with some rock fragments  Red sandy silt with clay, with some rock fragments  Red sandy silt with clay, with some rock fragments  Red sandy silt with clay, with some rock fragments  Red sandy silt with clay, with some rock fragments  REMAINS  Air Rotary  Air Rotary  Air Rotary  Possible water zana  Remains  Remains  Remains  Remains  Remains  Air Rotary  Possible water zana  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  Remains  R	22. DISPOS	STION OF H	OLE	- }		MOINTONNO			يز [	Em m	7.7	rody	
Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bed	Aband	loned with	grout	į					1	<u>'</u>			
Red sandy silt with some clay  Sandy silt with clay  Sandy silt with clay  Red sandy silt with clay, with some rock fragments  Red sandy silt with clay, with some rock fragments  12. 9. 10. 8  Hard red sandstone with zones of safter rock at 19', 21', 28', and 31'.  Possible water zone  Bettam of hore at 36.0'  Bettam of hore at 36.0'  Bettam of hore at 36.0'  Red sandy silt with some clay  Air Rotary  Air Rotary  Air Rotary  Possible water zone	ELEV.	DEPTH			DESCRIPTION OF MA	TERALS						R	DLARKS
Red sandy silt with some clay  Red sandy silt with clay  Sandy silt with clay  Red sandy silt with clay, with some rock fragments  12, 9, 10, 3  Hard red sandstone with zones of softer rock at 19', 21', 28', and 31'.  Betrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  Bedrock  B			<u> </u>										
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Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bedrack  Bed	,	-	1										
Sandy silt with clay  Red sandy silt with clay, with some rock fragments  12. 9. 10. 8  Hard red sandstone with zones of softer rock at 19', 21', 28', and 31'.  Possible water zone  Bettom of hose at 36.0' ,		5	Rea sar	dy silt	with some clay					8, 15, 17, 1	5	· ·	
Bedrack  Red sandy slit with clay, with some rock fragments  12, 9, 10, 8  Hard red sandstone with zones of softer rock at 19', 21', 28', and 31'.  25  Bottom of hote at 36.0'  Red sandy slit with clay, with some rock fragments  12, 9, 10, 8  Air Rotary  Air Rotary  Air Rotary  Air Rotary  Air Rotary  Air Rotary		=	}							Air Rotary			
Bedrack  Red sandy slit with clay, with some rock fragments  12, 9, 10, 8  Hard red sandstone with zones of softer rock at 19', 21', 28', and 31'.  25  Bottom of hote at 36.0'  Red sandy slit with clay, with some rock fragments  12, 9, 10, 8  Air Rotary  Air Rotary  Air Rotary  Air Rotary  Air Rotary  Air Rotary		-	1		•			<u> </u>		70 50 75	72	<u> </u>	
Bedrack  Hard red sandstone with zones of softer rock at 19°, 21°, 28°, and 31°.  Bedrack  Bedrack  Hard red sandstone with zones of softer rock at 19°, 21°, 28°, and 31°.  Bossible water zone	1	10 —	School :	silt with	n clay					31, 51, 36,	-		
Bedrack  - Hard red sandstone with zones of softer rock at 19°, 21°, 28°, and 31°.  25 - 30 - 35 - 35 - 35 - 36 - 36 - 36 - 36 - 36		1 :	1 .							Air Rotary			
Bedrack  - Hard red sandstone with zones of softer rock at 19°, 21°, 28°, and 31°.  25 - 30 - 35 - 35 - 35 - 36 - 36 - 36 - 36 - 36	İ	15	H Red sq	ndv sil	t with clay, with sor	ne rock fragments				12. 9. 1C.			
Hard red sandstone with Zones of Solital Total at 19', 21', 28', and 31'.  Possible water Zone  Bottom of hole at 36.0'  Bottom of hole at 36.0'  Bottom of hole at 36.0'  Bottom of hole at 36.0'  Bottom of hole at 36.0'	1	:	d		-					1			
25	Bedrock		Name of the	.4	estone with zones (	of softer rock	-			Air Rotory	,		
30 — Possible water zone  35 — Bostom of hace at 36.0' 1	1 .	20 —	at 19',	21', 28'	, and 31.								
30 — Possible water zone  Bostom of hole at 36.0' 1	1	:	7								}		
30 — Bostom of hole at 36.0' 1	1		₹ .			্					1		
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35 — Bottom of hole at 36.0' ,		30 —								1		COSSIDI	5 45.51 451.5
Bostom of hole at 36.0'	İ	-	<b>_</b>		·								
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2. DRILING SUBCONTRACTOR   SHETT					DRI	LLING	, LC	)G		· •		-		<del></del>
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Not Measured 77. OTHER WATER LEVEL MEASUREMENTS ISPECTY) 17. TOTAL POPTH OF HOLE 40.0" 18. TOTAL MARKET OF CORE BOXES None 0. SAMPLES FOR CHEMICAL ANALYSIS VOC METALS NA NA NA NA NA NA NA NA NA NA NA NA NA											PSED TIME AF	TER DRILL	UNG COMPLETE	<b>3</b> 0
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None  None  NA  NA  NA  NA  NA  NA  NA  NA  NA  N			AUDI FS		DISTURBED	UN	_	11			ORE BOXES			
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None  NA NA NA NA NA NA NA NA NA NA NA NA NA			HEMCAL ANA	YSIS	VOC	MET	ALS	OTHE	(SPECIFY)	OTHE	K (ZLECILL)	OÜME		RECOVERY
2. DISPOSITION OF HOLE Abandoned with grout  DESCRIPTION OF MATERIALS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, SCREDING RESULTS  SIDE, S					NA .	N/	A		NA		NA		NA	NA Z
Abandoned with grout  DESCRIPTION OF MATERIALS  SOIL SCREEDING RESALTS  SOIL SCREEDING RESALTS  SOIL SCREEDING RESALTS  COUNTS  From The Price of Herring St.  From Resalts  Section of Horizon St.  Red brown sitty sand grading into weathered red sandstone  Red brown sitty sand with fragments of red sandstone  Hard red sandstone  Hard red sandstone  Hard red sandstone  Water used to settle au  Water used to settle au  Water used to settle au  Water used to settle au  Water used to settle au						LANGTAN	NG WET!	OTHE	R (SPECIFY)	23. SI	CHATURE OF B	SPECTOR		
BLEY. DEPTH DESCRIPTION OF MATERIALS  SIGN SCREENING RESIATS  Black top and stone  Red brown sity sand grading into weathered red sandstone  10 Red brown sity sand with fragments of red sandstone  Red brown sity sand with fragments of red sandstone  Hard red sandstone  Air Rotary  Air Rotary  Med. dense  Air Rotary  Water used to settle au  Water used to settle au  40	2. DISPOS	SITION OF	HOLE			MONE I CHO		1		یر [	K 4	77.7	noody	
Black top and stone  Red brown silty sand grading into weathered red sandstone  Red brown silty sand with fragments of red sandstone  Red brown silty sand with fragments of red sandstone  Hard red sandstone  Air Rotary  Air Rotary  Air Rotary  Air Rotary  Air Rotary  Med. dense  20  31  32  33  34  Water used to settle au  40	Aband	ioned wil	th grout							10	7		/	
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Red brown silty sand grading into weathered red sandstone  10. 31, 5/5" Hard  Air Rotary  Red brown silty sand with fragments of red sandstone  Hard red sandstone  15. Hard red sandstone  Air Rotary  Water used to settle multiple and sandstone and settle multiple and sandstone and settle multiple and sandstone and settle multiple and sandstone and settle multiple and sandstone and settle multiple and sandstone and settle multiple and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone and sandstone an			Di- /-	···	i etone								6" Hommer	sit
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Red brown sity sand with fragments of red sandstone  Hard red sandstone  Hard red sandstone  Air Rotary  Water used to settle au	•		4											
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				15. DEP1	H GROUNDWAT	ER ENC	CONTENED				
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	DEPTH DRILED NTO ROCK  26.0°  TOTAL DEPTH OF HOLE  37.0°  GEOTECHNICAL SAMPLES  None  SAMPLES FÖR CHEMICAL ANALYSIS  None  NA  DISPOSITION OF HOLE  Abandoned with grout							TH TO WATER		SED TIME AF	LEK DIKOL	DAC COMPLETE	_		
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APPENDIX C

MONITORING WELL SCHEMATICS

## MONITOR WELL CONSTRUCTION SCHEMATIC

MM-6

WELL ID: \_ PROJECT: Kodalux, Fair Lawn, NJ COORDINATES: Lat 40°56'35.7"; Long 74°07'50.6" DRILLING CO.: Summit Drilling Co., Inc. AQUIFER: \_\_\_\_Uppermost SUPERVISED BY: LRM. Radian Corporation DEPTH TO WATER FROM MEASURING DRILLING METHOD: Air Rotary POINT (MP): 31.90' (11/14/91) DATE COMPLETED: 10/22/91 Top of casing FLUSH MOUNT MP: MANHOLE COVER ELEVATION OF MP: 88.15 HEIGHT OF MP RELATIVE TO GROUND LEVEL: -.30' LOCKING CAP -DEPTH CONCRETE PAD FEET GROUND SURFACE **GROUT** Cement-bentonite (8 gal. water to 5 lb. bentonite to 94 lb. Portland cement) 4.5 - 94 lb. bags AMOUNT: . Tremie pipe EMPLACEMENT METHOD: \_ RISER PIPE Steel (20.0' pipe) TYPE: 6-inch DIAMETER: -10 BOREHOLE 10" cased: 6" open rock DIAMETER: . 37.20' below MP DEPTH: . TOTAL LENGTH OPEN ROCK: 17.20' 20 -LEGEND SANDSTONE SHALE STATIC WATER LEVEL (11/14/91)  $\nabla$ 

### MONITOR WELL CONSTRUCTION SCHEMATIC MW-7/PB-1 PROJECT: Kodajux, Fair Lawn, NJ WELL ID: COORDINATES: Lat 40°56'36.1": Long 74°07'45.9" DRILLING CO.: Summit Drilling Co., Inc. Uppermost SUPERVISED BY: LRM. Radian Corporation AQUIFER: \_\_\_ DEPTH TO WATER FROM MEASURING DRILLING METHOD: Air Rotary POINT (MP): 33.15' (10-29-91) DATE COMPLETED: 10/24/91 Top of casing MP: FLUSH MOUNT ELEVATION OF MP: 93.31 MANHOLE COVER HEIGHT OF MP RELATIVE TO GROUND LEVEL: -0.4' LOCKING CAP -DEPTH CONCRETE PAD FEET GROUND SURFACE GROUT TYPE: \_\_Cement-bentonite (8 gal. water to 5 lb. bentonite to 94 lb. Portland cement) 9 - 94 lb. bags AMOUNT: -Tremie pipe EMPLACEMENT METHOD: \_ RISER PIPE Steel (25.0' pipe) TYPE: 6-inch DIAMETER: . BOREHOLE 10 10" cased: 6" open rock DIAMETER: \_ 36.25' below MP DEPTH: . 30 <del>-</del> 35 -LEGEND

SANDSTONE

 $\nabla$ 

STATIC WATER LEVEL

## RADIAN

# MONITOR WELL CONSTRUCTION SCHEMATIC

MM-8WELL ID: . COORDINATES: Lat 40°56'38.3": Long 74°07'47.6" PROJECT: Kodalux, Fair Lawn, NJ DRILLING CO.: Summit Drilling Co., Inc. Uppermost SUPERVISED BY: LRM. Radian Corporation AQUIFER: \_ DEPTH TO WATER FROM MEASURING DRILLING METHOD: Air Rotory DATE COMPLETED: 10/22/91 MP: \_\_\_\_Top of casing FLUSH MOUNT ELEVATION OF MP: 88.38 MANHOLE COVER -HEIGHT OF MP RELATIVE TO GROUND LEVEL: \_-0.34' LOCKING CAP -DEPTH CONCRETE PAD FEET GROUND SURFACE **GROUT** TYPE: Cement-bentonite (8 gal. water to 5 lb. bentonite to 94 lb. Portland cement) AMOUNT: 9 - 94 lb. bags Tremis pipe EMPLACEMENT METHOD: \_ RISER PIPE Steel (25.0' pipe) TYPE: DIAMETER: \_\_ 6-inch BOREHOLE DIAMETER: 10" cased: 6" open rock
DEPTH: 37.22' below MP TOTAL LENGTH OPEN ROCK: 12.22' 20 25 -30 -LEGEND 35 -SANDSTONE SOFT ZONE STATIC WATER LEVEL (11/14/91) 40 - $\nabla$ 

# MONITOR WELL CONSTRUCTION SCHEMATIC

WELL ID:

6-MM

PROJECT: Kodalux, Fair Lawn, NJ COORDINATES: Lat 40°56'36.9"; Long 74°07'42.9" DRILLING CO.: Summit Drilling Co., Inc. AQUIFER: \_\_\_\_Uppermost SUPERVISED BY: LRM. Radian Corporation DEPTH TO WATER FROM MEASURING DRILLING METHOD: Air Rotary POINT (MP): 27.50' (10-29-91) DATE COMPLETED: 10/24/91 Top of casing MP: \_ FLUSH MOUNT ELEVATION OF MP: 91.24 MANHOLE COVER HEIGHT OF MP RELATIVE TO GROUND LEVEL: \_-0.42' LOCKING CAP -DEPTH CONCRETE PAD FEET GROUND SURFACE **GROUT** TYPE: Cement-bentonite (8 gal. water to 5 lb. bentonite to 94 lb. Portland cement) AMOUNT: 7 - 94 1b. bags EMPLACEMENT METHOD: \_\_Tremie pipe RISER PIPE Steel (20.0' pipe) 6-inch DIAMETER: \_ BOREHOLE 10" cased: 6" open rock DIAMETER: \_ 39.52' below MP DEPTH: \_\_ TOTAL LENGTH OPEN ROCK: 19.52' 20 LEGEND SANDSTONE SHALE 40 STATIC WATER LEVEL (11/14/91)  $\nabla$ 

## RADIAN

## MONITOR WELL CONSTRUCTION SCHEMATIC

MW-10 COORDINATES: Lat 40°56'31.9"; Long 74°07'45.3" PROJECT: Kodalux, Fair Lawn, NJ DRILLING CO.: Summit Drilling Co., Inc. AQUIFER: Uppermost SUPERVISED BY: LRM. Radian Corporation DEPTH TO WATER FROM MEASURING DRILLING METHOD: Air Rotary POINT (MP): 25.33' (10-29-91) DATE COMPLETED: 10/24/91 MP: \_\_\_Top of casing FLUSH MOUNT ELEVATION OF MP: 96.17 MANHOLE COVER -HEIGHT OF MP RELATIVE TO GROUND LEVEL: -0.39 LOCKING CAP -DEPTH CONCRETE PAD FEET GROUND SURFACE GROUT TYPE: Cement-bentonite (8 gal. water to 5 lb. bentonite to 94 lb. Portland cement) AMOUNT: 7 - 94 lb.\_bags EMPLACEMENT METHOD: \_\_\_\_Tremie pipe RISER PIPE Steel (20.0' pipe) TYPE: DIAMETER: \_\_\_6-inch BOREHOLE 10" cased: 6" open rock DIAMETER: \_ 36.32' below MP DEPTH: \_ TOTAL LENGTH OPEN ROCK: 16.32' 20 25 -30 -LEGEND 35 **—** SANDSTONE SHALE STATIC WATER LEVEL (11/14/91) 40 - $\nabla$ 

### APPENDIX D

MONITORING WELL CERTIFICATION FORMS

Name of Permittee: Kodalux Name of Facility: Kodalux

Location:

Fairlawn, Bergen County

NJPDES Number:

#### LAND SURVEYOR'S CERTIFICATION

Well Permit Number (as assigned by NJDEP's Bureau of Water Allocation: This number must be permanently affixed to the well casing.

Longitude (one-half of a second):
Latitude (one-half of a second):
Elevation of Top of Inner Casing
(cap off) (one-hundredth of a foot):
Source of elevation datum (benchmark, etc.)
If an alternate datum has been approved by the Department, identify here and give approximated elevation:

Approximate Elevation:

Owners Well Number (As shown on application or plan):

West		•	50.6	
North	40	56	35.7	

Casing 88.15 RIM 88.45

Rte 208 Control Mon. Station 109+0

99.	58	

MW-6

#### **AUTHENTICATION**

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment.

PROFESSIONAL LAND SURVEYOR'S SIGNATURE

Richard C. Mathews

PROFESSIONAL LAND SURVEYOR'S NAME

1 CMarkins

(Please print or type)

SEAL

New Jersey License #29353

PROFESSIONAL LAND SURVEYOR'S LICENSE #

Name of Permittee:

Kođalux

Name of Facility:

Kodalux Fairlawn, Bergen County

I ocation:

NJPDES Number:

## LAND SURVEYOR'S CERTIFICATION

Well Permit Number (as assigned by NJDEP's Bureau of Water Allocation: This number must be permanently affixed to the well casing.

Longitude (one-half of a second):
Latitude (one-half of a second):
Elevation of Top of Inner Casing
(cap off) (one-hundredth of a foot):
Source of elevation datum (benchmark, etc.)
If an alternate datum has been approved by the Department, identify here and give approximated elevation:

Approximate Elevation:

Owners Well Number (As shown on application or plan):

West	74	07	45.	9	<del> </del>
North	40	56.	36.	.1	
Casing	93.3	L R	MI	93.7	1.

Rte 208 Control Mon. Sta. 109+0

99.58

MW-7

### **AUTHENTICATION**

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment.

PROFESSIONAL LAND SURVEYOR'S SIGNATURE

Richard C. Mathews

PROFESSIONAL LAND SURVEYOR'S NAME (Please print or type)

New Jersey License #29353

SEAL

PROFESSIONAL LAND SURVEYOR'S LICENSE #

Name of Permittee:

Kodalux

Name of Facility:

Kođalux Fairlawn, Bergen County

Location:

NJPDES Number:

## LAND SURVEYOR'S CERTIFICATION

Well Permit Number (as assigned by NJDEP's Bureau of Water Allocation: This number must be permanently affixed to the well casing.

Longitude (one-half of a second):
Latitude (one-half of a second):
Elevation of Top of Inner Casing
(cap off) (one-hundredth of a foot):
Source of elevation datum (benchmark, etc.)
If an alternate datum has been approved by the Department, identify here and give approximated elevation:

Approximate Elevation:

Owners Well Number (As shown on application or plan):

West	74	07_	47.6	
North_	40	56	38.3	

Casing 88.38 RIM 88.72
Rte 208 Control Mon. Sta. 109+0

99.58

8-WM

### **AUTHENTICATION**

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment.

PROFESSIONAL LAND SURVEYOR'S SIGNATURE

Richard C. Mathews

PROFESSIONAL LAND SURVEYOR'S NAME (Please print or type)

New Jersey License #29353

PROFESSIONAL LAND SURVEYOR'S LICENSE #

**SEAL** 

Name of Permittee:

Kodalux

Name of Facility:

Kodalux

Location:

Fairlawn, Bergen County

NJPDES Number:

### LAND SURVEYOR'S CERTIFICATION

Well Permit Number (as assigned by NJDEP's Bureau of Water Allocation: This number must be permanently affixed to the well casing.

Longitude (one-half of a second):
Latitude (one-half of a second):
Elevation of Top of Inner Casing
(cap off) (one-hundredth of a foot):
Source of elevation datum (benchmark, etc.)
If an alternate datum has been approved by the Department, identify here and give approximated elevation:

Approximate Elevation:

Owners Well Number (As shown on application or plan):

•
West 74 07 42.9
North 40 56 36.9
Casing 91.24 RIM 91.66
Rte 208 Control Mon. Sta. 109+0
99.58
MW-9

#### <u>AUTHENTICATION</u>

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment.

PROFESSIONAL LAND SURVEYOR'S SIGNATURE

Richard C. Mathews

PROFESSIONAL LAND SURVEYOR'S NAME (Please print or type)

New Jersey License #29353

**SEAL** 

PROFESSIONAL LAND SURVEYOR'S LICENSE #

Name of Permittee:

Kodalux

Name of Facility:

Kodalux

Location:

Fairlawn, Bergen County

NJPDES Number:

### LAND SURVEYOR'S CERTIFICATION

Well Permit Number (as assigned by NJDEP's Bureau of Water Allocation: This number must be permanently affixed to the well casing.

Longitude (one-half of a second):
Latitude (one-half of a second):
Elevation of Top of Inner Casing
(cap off) (one-hundredth of a foot):
Source of elevation datum (benchmark, etc.)

etc.)
If an alternate datum has been approved by the Department, identify here and give approximated elevation:

Approximate Elevation:

Owners Well Number (As shown on application or plan):

West	74	07	45.3	
North	40	56	31.9	

Casing 96.17 RIM 96.56

Rte 208 Control Mon. Sta. 109+0

99.58

MW-10

#### **AUTHENTICATION**

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment.

PROFESSIONAL LAND SURVEYOR'S SIGNATURE

Richard C. Mathews

PROFESSIONAL LAND SURVEYOR'S NAME
(Please print or type)

New Jersey License #29353

SEAL

PROFESSIONAL LAND SURVEYOR'S LICENSE #

Name of Permittee: Kodalux Kodalux Name of Facility: Fairlawn, Bergen County Location: NJPDES Number: LAND SURVEYOR'S CERTIFICATION Well Permit Number (as assigned by NJDEP's Bureau of Water Allocation: This number must be permanently affixed to the well casing. 44.7 West 07 Longitude (one-half of a second): 36.2 56 North 40 Latitude (one-half of a second): Elevation of Top of Inner Casing Not requested (cap off) (one-hundredth of a foot): Source of elevation datum (benchmark, If an alternate datum has been approved by the Department, identify here and give approximated elevation: Approximate Elevation:

### **AUTHENTICATION**

application or plan):

Owners Well Number (As shown on

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment.

PROFESSIONAL LAND SURVEYOR'S SIGNATURE

PROFESSIONAL LAND SURVEYOR'S NAME
(Please print or type)

SEAL

PB-2

New Jersey License #29353 PROFESSIONAL LAND SURVEYOR'S LICENSE #

Name of Permittee:

Kodalux

Name of Facility:

Kodalux

Location:

Fairlawn, Bergen County

NJPDES Number:

### LAND SURVEYOR'S CERTIFICATION

Well Permit Number (2s assigned by NJDEP's Bureau of Water Allocation: This number must be permanently affixed to the well casing.	
	West 74 07 43.9
Longitude (one-half of a second): Latitude (one-half of a second):	North 40 56 35.7
(cap off) (one-hundredth of a foot): Source of elevation datum (benchmark,	Not requested
etc.) If an alternate datum has been approved by the Department, identify here and give approximated elevation:	
Approximate Elevation:	
Approximate Lievadou.	
Owners Well Number (As shown on application or plan):	PB-3

#### **AUTHENTICATION**

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment.

PROFESSIONAL LAND SURVEYOR'S SIGNATURE

Richard C. Mathews

PROFESSIONAL LAND SURVEYOR'S NAME

(Please print or type)

SEAL

New Jersey License #29353

PROFESSIONAL LAND SURVEYOR'S LICENSE #

Name of Permittee:

Kodalux

Name of Facility:

Kodalux

Location:

Fairlawn, Bergen County

NJPDES Number:

### LAND SURVEYOR'S CERTIFICATION

Well Permit Number (as assigned by NJDEP's Bureau of Water Allocation: This number must be permanently affixed to the well casing.

Longitude (one-hait of a second).
I arimide (one-half of a second):
Elevation of Ton of Inner Casing
/con off) (one-hundredth of a 1001):
Source of elevation datum (benchmark,
etc )
If an alternate datum has been approved
by the Denartment, identify nere and
give approximated elevation:

		1.2					
A -		~vim	ata	FI	25.3	tin	n.
AD	יגעי	охіш	are		~ • •		

Owners Well Number (As shown on application or plan):

	PB-	-4

West

North

42.7

0.7

56

Not requested

#### **AUTHENTICATION**

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment.

PROFESSIONAL LAND SURVEYOR'S SIGNATURE

PROFESSIONAL LAND SURVEYOR'S NAME (Please print or type)

New Jersey License #29353
PROFESSIONAL LAND SURVEYOR'S LICENSE #

SEAL

#### THIS FORM MUST BE COMPLETED BY THE PERMITTEE OR HIS HER AGENT MONTTORING WELL CERTIFICATION - FORM B - LOCATION CERTIFICATION Kodalux Name of Permittee: Kodalux Name of Facility: Fairlawn, Bergen County Location: NIPDES Number: LAND SURVEYOR'S CERTIFICATION Well Permit Number (2s assigned by NJDEP's Bureau of Water Allocation: This number must be permanently affixed to the well casing. 07 Longitude (one-half of a second): 56 Latitude (one-half of a second): Elevation of Top of Inner Casing (cap off) (one-hundredth of a foot): Not Requested Source of elevation datum (beachmark, If an alternate datum has been approved by the Department, identify here and give approximated elevation: Approximate Elevation: Owners Well Number (As shown on PB-5 application or plan):

#### **AUTHENTICATION**

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment.

PROFESSIONAL LAND SURVEYOR'S SIGNATURE

Richard C. Mathews

PROFESSIONAL LAND SURVEYOR'S NAME (Please print or type)

New Jersey License 29353

SEAL

PROFESSIONAL LAND SURVEYOR'S LICENSE #

Name of Permittee:

Kodalux

Name of Facility:

Kodalux Fairlawn, Bergen County

Location:

NJPDES Number:

### LAND SURVEYOR'S CERTIFICATION

Well Permit Number (as assigned by NJDEP's Bureau of Water Allocation: This number must be permanently affixed to the well casing.

Longitude (one-half of a second):
Latitude (one-half of a second):
Elevation of Top of Inner Casing
(cap off) (one-hundredth of a foot):
Source of elevation datum (benchmark, etc.)
If an alternate datum has been approved by the Department, identify here and give approximated elevation:

Approximate Elevation:

Owners Well Number (As shown on application or plan):

#### **AUTHENTICATION**

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment.

PROFESSIONAL LAND SURVEYOR'S SIGNATURE

Richard C. Mathews

PROFESSIONAL LAND SURVEYOR'S NAME (Please print or type)

New Jersey License #29353

PROFESSIONAL LAND SURVEYOR'S LICENSE #

**SEAL** 

43.4

74

Not requested

**PB-6** 

West

North 40

#### APPENDIX E

GROUNDWATER DEVELOPMENT RECORDS

roject nitial/Finitial/Finitial/Fine/Da ogger Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress Congress	te Start Deve on ID 6" Kodalux, Fai nal Groundw nal Depth to te Finish De ode LM e/Capacity of	rlawn. NJ rater Depth 30.34 Bottom of Well velopment 0930/1 of Pump or Bailer ge for 3/5 (circle of the 15 Gallon	// 3 10-29-91 plastic/bone) Well	ottom filling/	/3 gallon	oint ing Point
Time	Cummulative Volume (Gallons)	Clarity/Color	pH	Specific Conductivity (a mhos)	Temp °C	Comments
0930	-15	silty	7.52	600	Not Measured	bailed dry
0930						
				·		
<del></del> .						<u> </u>
	+					
			<del>                                     </del>			

roject _	on ID <u>6"</u> Kodalux, Fai nal Groundw	irlawn, NJ vater Depth 33.15 Bottom of Well	_/	(FT) Belo	w Measuring P Below Measur	oint ing Point
ime/Da	te Finish De	velopment <u>0930/</u>	10-28-91	30.23 (1 1)		_
ogger C	code <u>LM</u>	of Pump or Bailer	submers	ible pump		
ntal Vo	hime to Puri	ge for (3)5 (circle o	one) Well	Volumes 14	Gallons	
actual P	urged Volum	ne 15 Gallor	ıs	-		
Time	Cummulative Volume (Gallons)	Clarity/Color	рН	Specific Conductivity (a mhos)	Temp °C	Comments
0920	15	cloudy	7.52	630	Not Measured	pumped dry
0920	15	cloudy	7.52	630	Not Measured	pumped dry
0920	15	cloudy	7.52	630	Not Measured	pumped dry
0920	15	cloudy	7.52	630	Not Measured	pumped dry
0920	15	cloudy	7.52	630	Not Measured	pumped dry
0920	15	cloudy	7.52	630	Not Measured	pumped dry
0920	15	cloudy	7.52	630	Not Measured	pumped dry
0920	15	cloudy	7.52	630	Not Measured	pumped dry
0920	15	cloudy	7.52	630	Not Measured	pumped dry
0920	15	cloudy	7.52	630	Not Measured	pumped dry

Time, Instal Project Initia Initia Time Logge Type	Well ID _MW-8  Time/Date Start Development0845/10-29-91  Installation ID _6"  Project _Kodalux, Fairlawn, NJ  Initial/Final Groundwater Depth27.32/ (FT) Below Measuring Point  Initial/Final Depth to Bottom of Well / 37.22 (FT) Below Measuring Point  Time/Date Finish Development 0900/10-29-91  Logger Code _LM  Type, Size/Capacity of Pump or Bailer plastic, bottom filling/3 gal  Total Volume to Purge for ③5 (circle one) Well Volumes Gallons  Actual Purged Volume Gallons						
T	ime	Cummulative Volume (Gallons)	Clarity/Color	pН	Specific Conductivity (£ mhos)	Temp °C	Comments
0900		20	cloudy, silty	7.58	570	Not Measured	bailed dry
0,55							
-							
-							
-							
		·					
			·				
	. <u></u>						<u> </u>
ļ						1	1

Time/Dat Installatio Project _] Initial/Fin Initial/Fin Time/Da Logger C Type, Siz	Well ID _MW-9 Time/Date Start Development9:45_10-28-91  Installation ID _6"  Project _Kodalux, Fairlawn, NJ Initial/Final Groundwater Depth27.50/ (FT) Below Measuring Point Initial/Final Depth to Bottom of Well / 39.52 (FT) Below Measuring Point Ime/Date Finish Development 0830/10-29-91  Logger Code _LM Type, Size/Capacity of Pump or Bailer Plastic bottom-filling, 3 gal Total Volume to Purge for (Gircle one) Well Volumes Gallons  Actual Purged Volume Gallons						
Time	Cummulative Volume (Gallons)	Clarity/Color	рĤ	Specific Conductivity (4 mhos)	Temp ℃	Comments	
			9.4	580	Not Measured	pumped dry	
1015	5	cloudy	7.79	640	Not Measured	bailed dry	
0830	20	cloudy					
	<del></del>						
					1		

Time/Dat Installation Project <u>I</u> Initial/Fin Initial/Fin Time/Dat Logger Co Type, Size	Well ID MW-10 Sime/Date Start Development 1030/10-29-91 Installation ID 6" Project Kodalux, Fairlawn, NJ Initial/Final Groundwater Depth 25.33 / (FT) Below Measuring Point Initial/Final Depth to Bottom of Well / 36.32 (FT) Below Measuring Point Initial/Final Development 1050/10-29-91 Logger Code							
Time	Cummulative Volume (Gallons)	Clarity/Color	pH	Specific Conductivity (a mhos)	Temp °C	Comments		
	20	cloudy	7.64	650	Not Measured	Bailed Dry		
1050	-20	Liousy						
						<u> </u>		
	+							
	-							
					1			

APPENDIX F

ANALYTICAL RESULTS

#### ANALYTICAL RESULTS

Prepared Por

Radian Corporation 155 Corporate Woods, Suite 100 Rochester, NY 14623

Prepared By

Recra Environmental, Inc. 10 Hazelwood Drive, Suite 106 Amherst, New York 14228-2298

#### METHODOLOGIES

The specific methodologies employed in obtaining the enclosed analytical results are indicated on the specific data table. The method numbers presented refer to one of the following U.S. Environmental Protection Agency references unless noted otherwise in this report.

- o 40 CFR Part 136 "Guidelines Establishing Test Procedures for the Analysis of Pollutants Under the Clean Water Act" October 24, 1984 (Federal Register) U.S. Environmental Protection Agency.
- o U.S. Environmental Protection Agency "Test Methods for Evaluating Solid Waste Physical/Chemical Methods." Office of Solid Waste and Emergency Response. November 1986, SW-846, Third Edition.
- o The analysis for Formaldehyde was performed in accordance with Method 3500 from the National Institute of Occupational Safety and Health.

#### COMMENTS

Comments pertain to data on one or all pages of this report.

The enclosed data has been reported utilizing data qualifiers (Q) as defined on the Organic and Inorganic Data Comment Pages.

Quality control analysis was performed on a batch basis. All results were within acceptable limits.

The extraction date for Hexavalent Chromium was November 16, 1991.



VOLATILES DATA

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# RADIAN CORPORATION AQUEOUS MATRIX METHOD 624 - PRIORITY POLLUTANT VOLATILE ORGANICS

LAE NAME RECRA ENVIRONMENTAL INC. JCB NO. 91-3386

SAMPLE DATE 11/15/0:

ANALYSIS DATE 11/18/\_:

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Acrolein	100 U	
Acrolein Acrylonitrile	5.0	ز
Benzene		
Bromodichloromethane	5.0 U 5.0 U 5.0 U 5.0 U 5.0 U	J
Bromoform	10 0	Ü
Bromomethane	5.0	Ü
Carbon Tetrachloride	5.0	Ü
Chlorobenzene	5.0	Ū
Chlorodibromomethane	7.5	J
chi orosthane	10	Ū
2-Chloroethylvinyl ether	7.9	
Chloroform		U
Chloromethane	50	
1,1-Dichloroethane	5.0	U
11.2-Dichloroethane	16	
li i-nichloroethene	8.7	
trans-1,2-Dichloroethene		U
li 2-Dichloropropane	5.0	U
lcis-1.3-Dichloropropene	5.0	U
trans-1,3-Dichloropropene	5.0	U
Rrhylbenzene	5.0	U
Methylene chloride	5.0	U
Imotrochi oroethene	5.0	ט
1,1,2,2-Tetrachloroethane	5.0	U
Toluene	87	
1 1 1-Trichloroethane		U
11.1.2-Trichloroethane	6.7	
Trichloroethene		J
Vinyl chloride		<u></u>

DILUTION FACTOR = 1.0

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO. 91-3386

SAMPLE DATE 11/15/91

SAMPLE NO. MW-1

ANALYSIS DATE 11/18/91

COMPOUND (Units of Measure = UG/L )	RESULT	Q
	5.0 5.0	ם
m-Xylene o/p-Xylene *		<u> </u>

DILUTION FACTOR = 1.0 CHROMATOGRAPHICALLY ORTHO-XYLENE AND PARA-XYLENE COELUTE.

130

# AQUEOUS MATRIX METHOD 624 - PRIORITY POLLUTANT VOLATILE ORGANICS

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

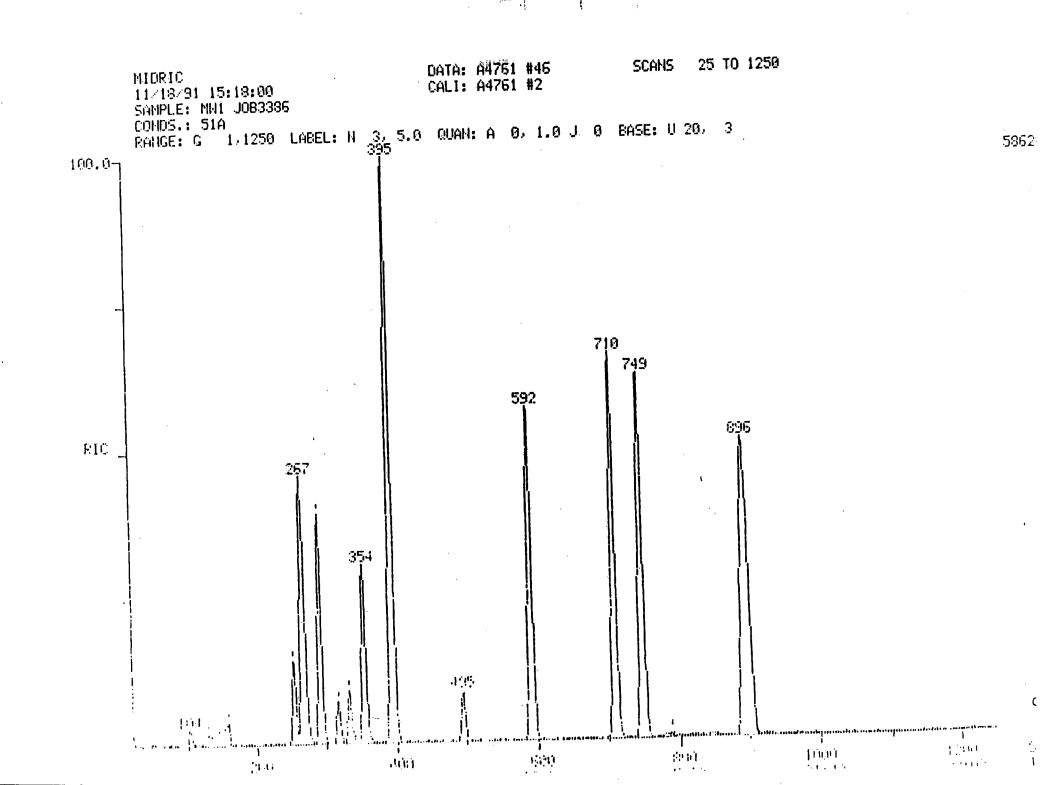
91-3386

ANALYSIS DATE 11/18/

SAMPLE DATE 11/15/9:

SAMPLE NO. MW-1

	RESULT	Q
COMPOUND	RESULI	+
Internal Standards	·	
(%Recovery) Bromochloromethane 1,4-Difluorobenzene Chlorobenzene-D5 Surrogates	91 92 95	
(%Recovery) p-Bromofluorobenzene 1,2-Dichloroethane-D4 Toluene-D8	99 96 97	



### ANALYTICAL RESULTS

## GAS CHROMATOGRAPHY/MASS SPECTROMETRY VOLATILE LIBRARY COMPARISON SEARCH

SAMPLE I.D.:MW-1

JOB#:91-3386.12

FILE: A4761

SCAN #	COMPOUND NAME	ESTIMATED CONCENTRATION (UNITS= UG/L)
	<u>, , , , , , , , , , , , , , , , , , , </u>	

# AQUEOUS MATRIX METHOD 624 - PRIORITY POLLUTANT VOLATILE ORGANICS

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

MW-1 FIELD DUP

DESC SAMPLE NO. FIELD DUP SAMPLE DATE 11/15/91

ANALYSIS DATE 11/18/91

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Acrolein Acrylonitrile Benzene Bromodichloromethane Bromoform Bromomethane Carbon Tetrachloride Chlorobenzene Chlorodibromomethane Chloroethane 2-Chloroethylvinyl ether Chloroform Chloromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethene trans-1,2-Dichloropropene trans-1,3-Dichloropropene Ethylbenzene Methylene chloride Tetrachloroethane 1,1,2,2-Tetrachloroethane 1,1,1-Trichloroethane 1,1,2-Trichloroethane 1,1,2-Trichloroethane Trichloroethene Vinyl chloride	100 100 5.0 5.0 5.0 5.0 5.0 7.3 10 7.8 10 51 5.0 9.0 5.0 5.0 5.0 5.0 5.0 5.0 6.6 10	ם ם שממממממ מ מ מנימממממממממ

DILUTION FACTOR = 1.0

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO. 91-3386
DESC MW-1 FIELD DUP
SAMPLE NO. FIELD DUP

SAMPLE DATE 11/15/91

ANALYSIS DATE 11/18/9

		<b>I</b>
COMPOUND (Units of Measure = UG/L )	RESULT	Q
(Onited of the	5.0	ט
m-Xylene	5.0	U
m-Xylene o/p-Xylene *		

DILUTION FACTOR = 1.0 CHROMATOGRAPHICALLY ORTHO-XYLENE AND PARA-XYLENE COELUTE.

130

### RADIAN CORPURATION AQUEOUS MATRIX METHOD 624 - PRIORITY POLLUTANT VOLATILE ORGANICS

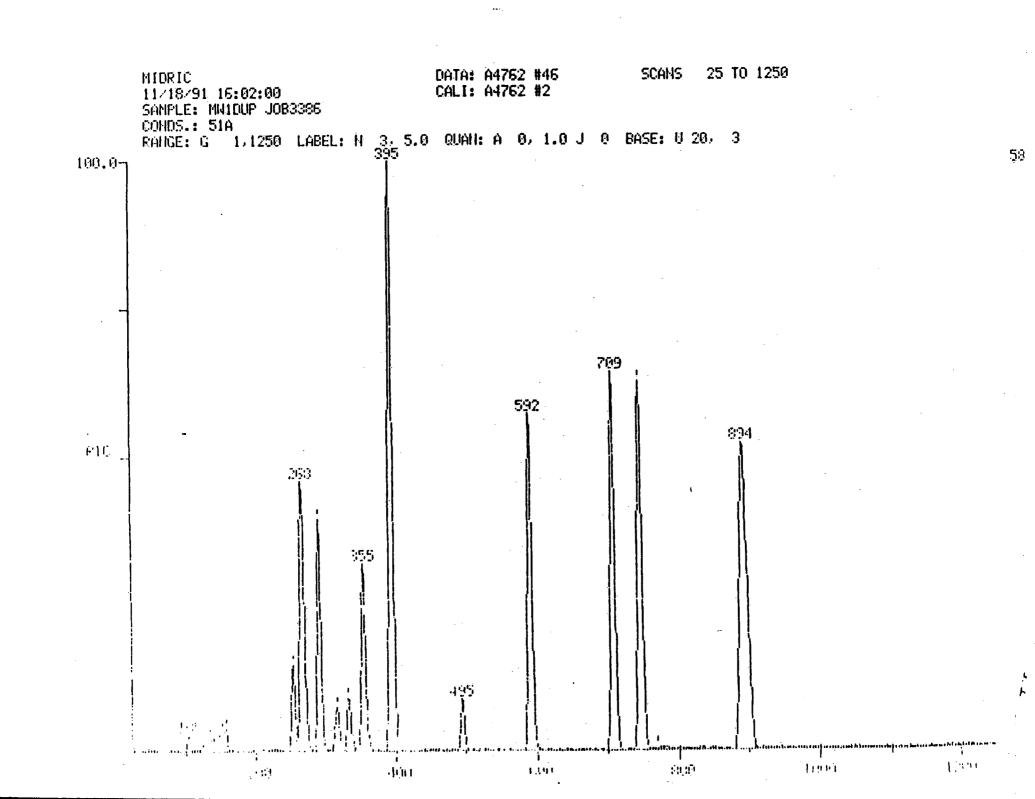
NAME

91-3386 NO.

RECRA ENVIRONMENTAL INC.

SAMPLE DATE 11/15/91 ANALYSIS DATE 11/18/91

NAME 91-3386 NO. MW-1 FIELD DUP	ANALISIS
AMPLE NO. FIELD DUP	RESULT Q
COMPOUND	
Internal Standards	91 92
(%Recovery) Bromochloromethane 1,4-Difluorobenzene Chlorobenzene-D5	94
Surrogates	97 99
(%Recovery) p-Bromofluorobenzene 1,2-Dichloroethane-D4 Toluene-D8	98



## ANALYTICAL RESULTS

## GAS CHROMATOGRAPHY/MASS SPECTROMETRY VOLATILE LIBRARY COMPARISON SEARCH

SAMPLE I.D.:MW-1 FIELD DUP

JOB#:91-3386.11

FILE:A4762

SCAN #	COMPOUND NAME	ESTIMATED CONCENTRATION (UNITS= UG/L)

## RADIAN CORPORATION AQUEOUS MATRIX METHOD 624 - PRIORITY POLLUTANT VOLATILE ORGANICS

LAB NAME RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE DATE 11/15/c

ANALYSIS DATE 11/18/-

SAMPLE NO. MW-2

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Acrolein Acrylonitrile Benzene Bromodichloromethane Bromoform Bromomethane Carbon Tetrachloride Chlorobenzene Chloroethane 2-Chloroethylvinyl ether Chloroform Chloromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethene trans-1,2-Dichloroethene trans-1,3-Dichloropropene trans-1,3-Dichloropropene Ethylbenzene Methylene chloride Tetrachloroethane 1,1,2-Tetrachloroethane 1,1,2-Trichloroethane 1,1,2-Trichloroethane Toluene 1,1,2-Trichloroethane Trichloroethene Vinyl chloride	100 100 5.0 5.0 5.0 10.67 10 210 5.0 460 1.5 5.0 5.0 5.0 5.0 5.0 7.2 1.6	ר מ*מממממממלממלמ מממממממממ

DILUTION FACTOR = 1.0 \*DILUTION FACTOR = 100

#### אירוד בינים האירות אינים אינים בינים אינים בינים האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות האירות התירות התירות התירות התירות התירות התירות התירות התירות הת ADDITIONAL VOLATILE ORGANICS

LAB NAME RECRA ENVIRONMENTAL INC. JOB NO. 91-3386

ANALYSIS DATE 11/18/9

SAMPLE DATE 11/15/9

SAMPLE NO. MW-2

COMPOUND (Units of Measure = UG/L )	RESULT	Q
m-Xylene o/p-Xylene *	5.0 1.5	IJ

DILUTION FACTOR = 1.0 CHROMATOGRAPHICALLY ORTHO-XYLENE AND PARA-XYLENE COELUTE. THE REPORTED VALUE IS, THEREFORE, AN "AND/OR" VALUE.

130

#### RADIAN CORPORATION AQUEOUS MATRIX METHOD 624 - PRIORITY POLLUTANT

VOLATILE ORGANICS

JOB NO.

91-3386

LAB NAME RECRA ENVIRONMENTAL INC.

SAMPLE DATE 11/15/91

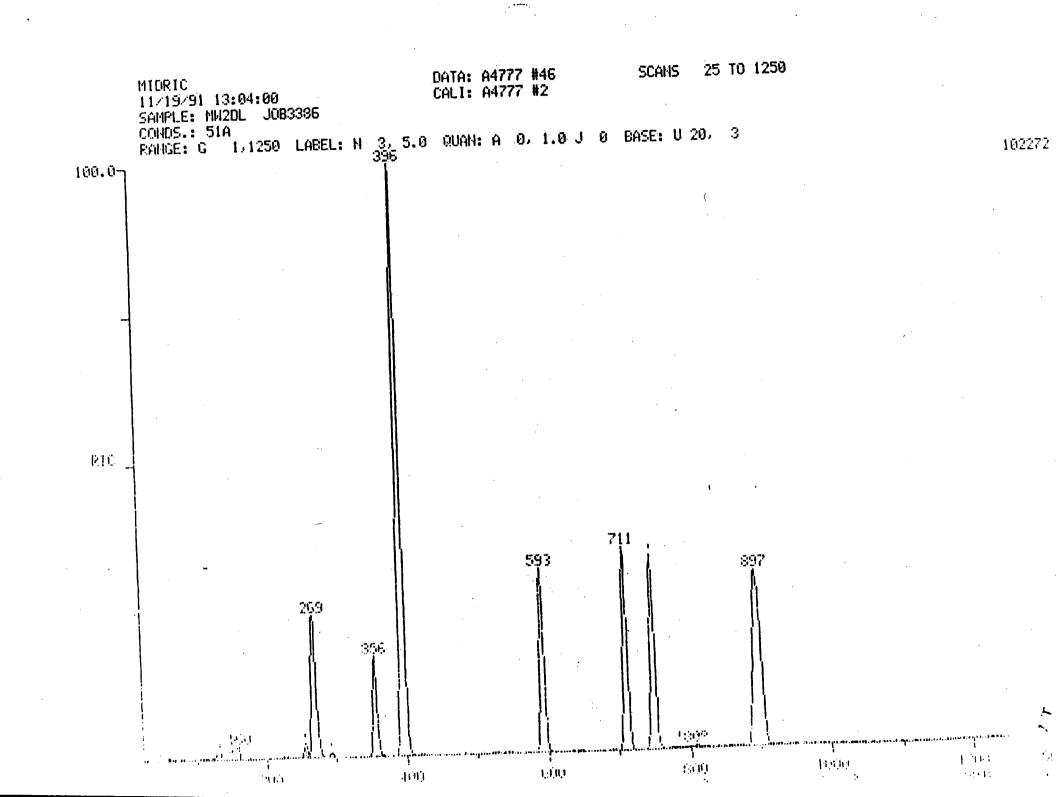
SAMPLE NO. MW-2

ANALYSIS DATE 11/18/9

	RESULT	Q
COMPOUND		1
Internal Standards		
(%Recovery) Bromochloromethane 1,4-Difluorobenzene Chlorobenzene-D5	95 142 132	
Surrogates		
(%Recovery) p-Bromofluorobenzene 1,2-Dichloroethane-D4 Toluene-D8	117 101 95	**

<sup>\*\*</sup>SURROGATE RECOVERY OUTSIDE OF QUALITY CONTROL LIMITS.

MIDRIC DATA: 84763 #46 CALI: A4763 #2 SAMPLE: MM2 J083386 CONDS.: 51A RANGE: G 1,1250 LABEL: N 3, 5.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3 DATA: A4763 #46 CALI: A4763 #2 SCANS 25 TO 1250 427622 100.07 **FTC** 11933 11.031 6.111.1 311



### GAS CHROMATOGRAPHY/MASS SPECTROMETRY VOLATILE LIBRARY COMPARISON SEARCH

SAMPLE I.D.:MW-2

JOB#:91-3386.1 FILE:A4763/A4777

SCAN #	COMPOUND NAME	ESTIMATED CONCENTRATION (UNITS= UG/L)
	-	

#### RADIAN CORPORATION AQUEOUS MATRIX METHOD 624 - PRIORITY POLLUTANT VOLATILE ORGANICS

LAB NAME RECRA ENVIRONMENTAL INC. JOB NO. 91-3386

JOB NO.

SAMPLE NO. MW-3

SAMPLE DATE 11/15/91

ANALYSIS DATE 11/19/5.

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Acrolein Acrylonitrile Benzene Bromodichloromethane Bromoform Bromomethane Carbon Tetrachloride Chlorobenzene Chlorodibromomethane Chloroethane 2-Chloroethylvinyl ether Chloroform Chloromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethene trans-1,2-Dichloroethene trans-1,3-Dichloropropene Etras-1,3-Dichloropropene Etras-1,3-Dichloropropene Ethylbenzene Methylene chloride Tetrachloroethene 1,1,2,2-Tetrachloroethane Toluene 1,1,1-Trichloroethane 1,1,2-Trichloroethane Trichloroethene Vinyl chloride	100 100 13 5.0 5.0 5.0 5.0 5.7 10 0.96 10 110 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.	רכי*מסססססססס ס ספספטטטטטטטטטטטטטטטטטטטטטטטט

DILUTION FACTOR = 1.0 \*DILUTION FACTOR = 5.0

LAE NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE DATE 11/15/91

SAMPLE NO. MW-3

ANALYSIS DATE 11/19/9:

COMPOUND (Units of Measure = UG/L )	RESULT	Q
-Xylene /p-Xylene *	5.0 5.0	ប

DILUTION FACTOR = 1.0 CHROMATOGRAPHICALLY ORTHO-XYLENE AND PARA-XYLENE COELUTE.

# RADIAN CORPORATION AQUEOUS MATRIX METHOD 624 - PRIORITY POLLUTANT VOLATILE ORGANICS

LAB NAME JOB NO. RECRA ENVIRONMENTAL INC.

91-3386

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SAMPLE DATE 11/15/91

SAMPLE NO. MW-3

ANALYSIS DATE 11/19/9

	RESULT	Q
COMPOUND		+
Internal Standards	·	
(%Recovery) Bromochloromethane 1,4-Difluorobenzene Chlorobenzene-D5	101 94 95	
Surrogates	·	
(%Recovery) p-Bromofluorobenzene 1,2-Dichloroethane-D4 Toluene-D8	99 95 99	-

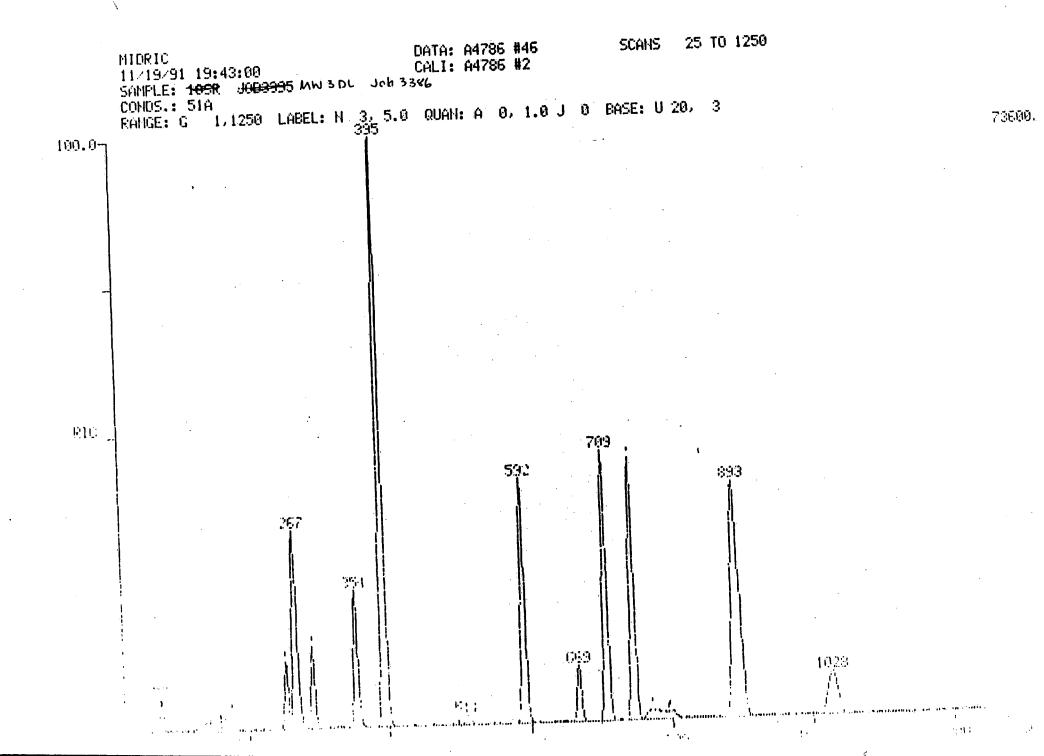
25 TO 1250 DATA: A4778 #46 CALI: A4778 #2 SCAHS MIDRIC 11/19/91 13:48:00 CALI: A4778 #2
SAMPLE: MM3 JOB3386
CONDS.: 51A
RANGE: G 1,1250 LABEL: N 3, 5.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3 100.07 EIC

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525310

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## GAS CHROMATOGRAPHY/MASS SPECTROMETRY VOLATILE LIBRARY COMPARISON SEARCH

SAMPLE I.D.:MW-3/DL

JOB#:91-3386.4

FILE: A4778 & A4786

SCAN #	COMPOUND NAME	ESTIMATED CONCENTRATION (UNITS= UG/L)
1020	HEXACHLOROBUTADIENE	90
1028		

<sup>\*</sup>Tic found in dilution of sample MW-3.

#### RADIAN CURPURATION AQUEOUS MATRIX METHOD 624 - PRIORITY POLLUTANT VOLATILE ORGANICS

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE DATE 11/15/9: ANALYSIS DATE 11/19/ :

SAMPLE NO. MW-4

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Acrolein Acrylonitrile Benzene Bromodichloromethane Bromomethane Bromomethane Carbon Tetrachloride Chlorobenzene Chloroethane 2-Chloroethylvinyl ether Chloroform Chloromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethene trans-1,2-Dichloroethene trans-1,3-Dichloropropene trans-1,3-Dichloropropene Ethylbenzene Methylene chloride Tetrachloroethene 1,1,2,2-Tetrachloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,2-Trichloroethane Trichloroethene Vinyl chloride	100 100 5.0 5.0 5.0 10 5.0 10 10 5.0 10 17 5.0 10 17 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0	למם מממממממממממ מממממממממממ

DILUTION FACTOR = 1.0

#### ADDITIONAL VOLATILE ORGANICS

LAB NAME RECRA ENVIRONMENTAL INC. JOB NO. 91-3386

SAMPLE NO. MW-4

ANALYSIS DATE 11/19/9

SAMPLE DATE 11/15/9

COMPOUND (Units of Measure = UG/L )	RESULT	Q
m-Xylene o/p-Xylene *	5.0 5.0	บ บ

DILUTION FACTOR = 1.0 CHROMATOGRAPHICALLY ORTHO-XYLENE AND PARA-XYLENE COELUTE.

#### RADIAN CORPORATION AQUEOUS MATRIX METHOD 624 - PRIORITY POLLUTANT VOLATILE ORGANICS

LAB NAME RECRA ENVIRONMENTAL INC.

JOB NO.

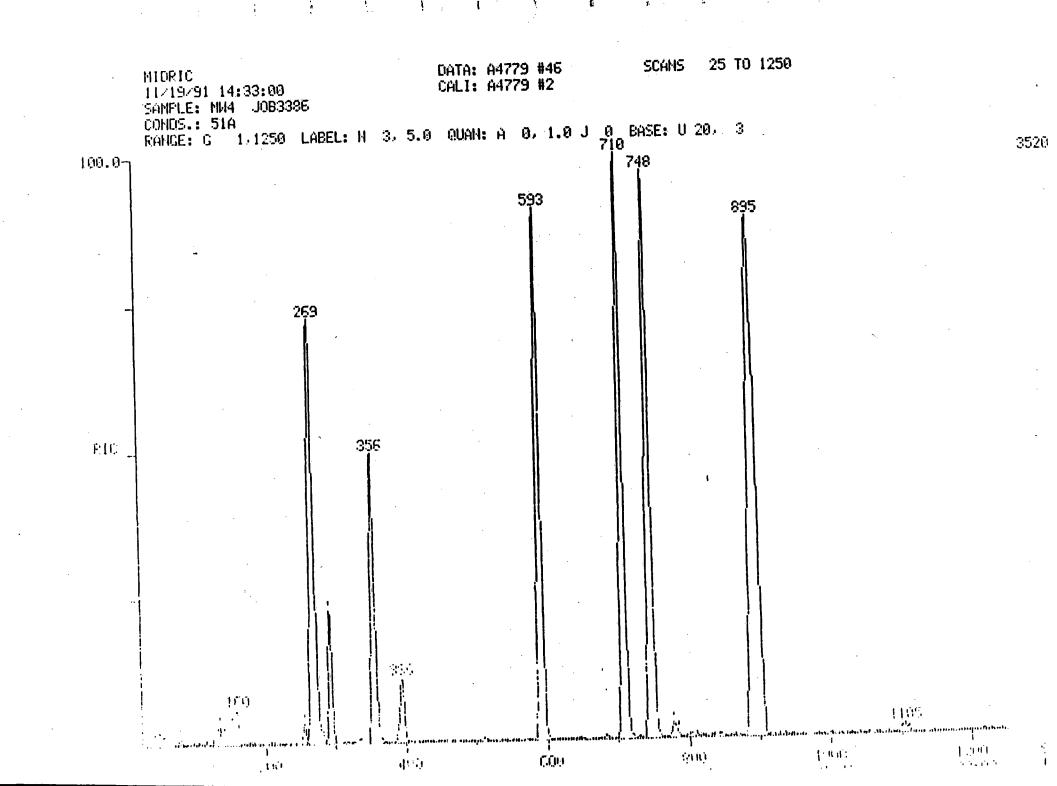
91-3386

SAMPLE DATE 11/15/c

ANALYSIS DATE 11/19/

SAMPLE NO. MW-4

		RESULT	Q
COMPOUND			
Internal Standards			
(%Recovery) Bromochloromethane 1,4-Difluorobenzene Chlorobenzene-D5		98 90 90	
Surrogates	·		
(%Recovery) p-Bromofluorobenzene 1,2-Dichloroethane-D4 Toluene-D8		104 96 101	-



## GAS CHROMATOGRAPHY/MASS SPECTROMETRY VOLATILE LIBRARY COMPARISON SEARCH

SAMPLE I.D.:MW-4

JOB#:91-3386.6

FILE: A4779

SCAN #	COMPOUND NAME	ESTIMATED CONCENTRATION (UNITS= UG/L)
		·
	-	
·		

#### KADIAN CURFURALLUN AQUEOUS MATRIX

METHOD 624 - PRIORITY POLLUTANT VOLATILE ORGANICS

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO. 91-3386

SAMPLE NO. MW-5

SAMPLE DATE 11/15/9

ANALYSIS DATE 11/19/9

		T
COMPOUND (Units of Measure = UG/L )	RESULT	Q
Acrolein Acrylonitrile Benzene Bromodichloromethane Bromoform Bromomethane Carbon Tetrachloride Chlorobenzene Chlorodibromomethane Chloroethane 2-Chloroethylvinyl ether Chloroform Chloromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethene trans-1,2-Dichloroethene trans-1,2-Dichloropropane Cis-1,3-Dichloropropene trans-1,3-Dichloropropene Ethylbenzene Methylene chloride Tetrachloroethene 1,1,2,2-Tetrachloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane 1,1,2-Trichloroethane Trichloroethene Vinyl chloride	100 100 5.0 5.0 10 10 10 10 10 10 10 10 10 10 10 10 10	ממממממממממממממממממממממממממ

DILUTION FACTOR = 1.0

### ADDITIONAL VOLATILE ORGANICS

LAB NAME REC

RECRA ENVIRONMENTAL INC.

JOB NO. 91-

91-3386

ANALYSIS DATE 11/19/9

SAMPLE DATE 11/15/91

SAMPLE NO. MW-5

COMPOUND	RESULT	Q	
(Units of Measure = UG/L )	5.0	U	
m-Xylene *	]	L	į

DILUTION FACTOR = 1.0 CHROMATOGRAPHICALLY ORTHO-XYLENE AND PARA-XYLENE COELUTE.

## AQUEOUS MATRIX METHOD 624 - PRIORITY POLLUTANT VOLATILE ORGANICS

LAB NAME RECRA ENVIRONMENTAL INC.

JOB NO.

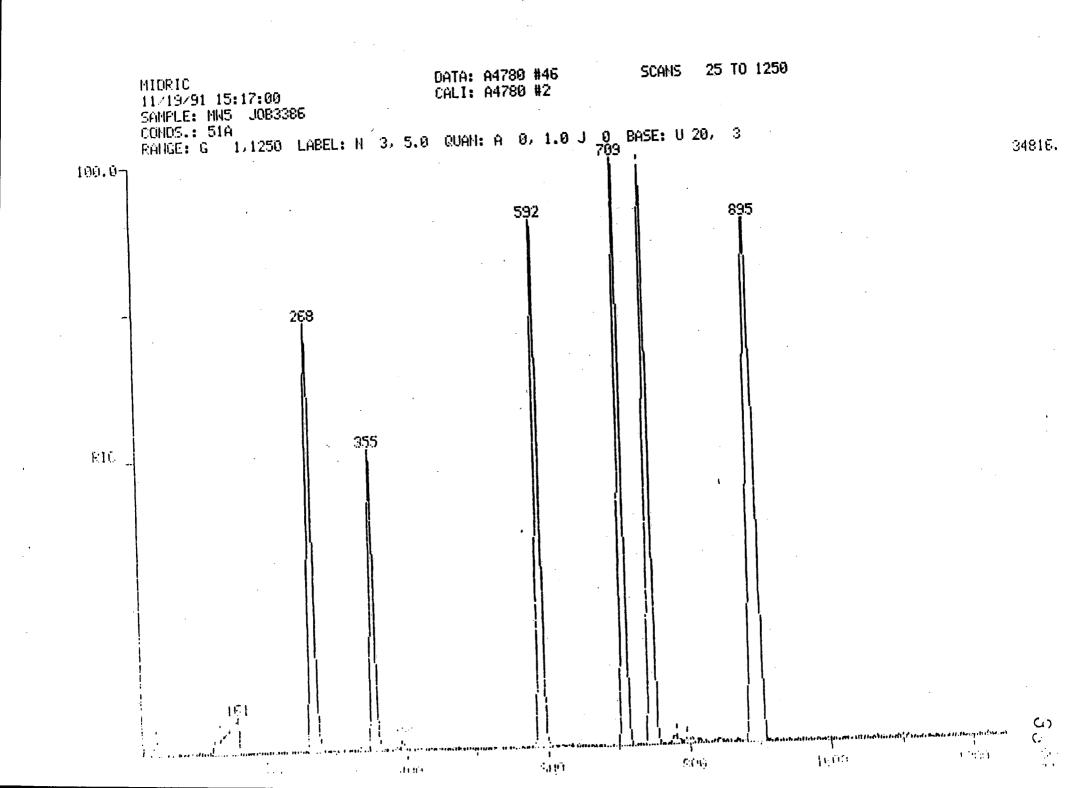
91-3386

SAMPLE NO. MW-5

SAMPLE DATE 11/15/9

ANALYSIS DATE 11/19/9

COMPOUND		ŘESULT	Q
Internal Standards			
(%Recovery) Bromochloromethane 1,4-Difluorobenzene Chlorobenzene-D5		94 91 91	
Surrogates			
(%Recovery) p-Bromofluorobenzene 1,2-Dichloroethane-D4 Toluene-D8	-	106 101 99	-



### GAS CHROMATOGRAPHY/MASS SPECTROMETRY VOLATILE LIBRARY COMPARISON SEARCH

SAMPLE I.D.:MW-5

JOB#:91-3386.5

FILE:A4780

SCAN #	COMPOUND NAME	ESTIMATED CONCENTRATION (UNITS= UG/L)
	·	
	<u>'</u>	

#### AQUEOUS MATRIX METHOD 624 - PRIORITY POLLUTANT VOLATILE ORGANICS

LAB NAME JOB NO.

RECRA ENVIRONMENTAL INC.

91-3386

ANALYSIS DATE 11/18/

SAMPLE DATE 11/15/9:

SAMPLE NO. MW-6

COMPOUND 0 RESULT (Units of Measure = UG/L U 100 Acrolein U 100 Acrylonitrile U 5.0 Benzene J 3.1 Bromodichloromethane U 5.0 Bromoform U 10 Bromomethane U 5.0 Carbon Tetrachloride U 5.0 Chlorobenzene J 0.61 Chlorodibromomethane U 10 Chloroethane 10 U 2-Chloroethylvinyl ether 12 Chloroform U 10 Chloromethane 5.0 U 1,1-Dichloroethane U 5.0 1,2-Dichloroethane U 5.0 1,1-Dichloroethene U 5.0 trans-1,2-Dichloroethene U 5.0 1,2-Dichloropropane U 5.0 Cis-1,3-Dichloropropene Ü 5.0 trans-1,3-Dichloropropene U 5.0 Ethylbenzene U 5.0 Methylene chloride Ù 5.0 Tetrachloroethene U 5.0 1,1,2,2-Tetrachloroethane U 5.0 Toluene 13 1,1,1-Trichloroethane 5.0 U

DILUTION FACTOR = 1.0

Trichloroethene

Vinyl chloride

1,1,2-Trichloroethane

U

U

5.0

RECRA ENVIRONMENTAL INC. LAE NAME JOB NO. 91-3386

SAMPLE NO. MW-6

SAMPLE DATE 11/15/9

ANALYSĪS DATE 11/18/9

COMPOUND (Units of Measure = UG/L )	RESULT	Q
m-Xylene o/p-Xylene *	5.0 5.0	ט ט

DILUTION FACTOR = 1.0 CHROMATOGRAPHICALLY ORTHO-XYLENE AND PARA-XYLENE COELUTE.

#### RADIAN CURPURATION AQUEOUS MATRIX METHOD 624 - PRIORITY POLLUTANT VOLATILE ORGANICS

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE NO. MW-6

ANALYSIS DATE 11/18/9.

SAMPLE DATE 11/15/91

	RESULT	Q
COMPOUND		
Internal Standards		
(%Recovery) Bromochloromethane 1,4-Difluorobenzene Chlorobenzene-D5	92 91 90	
Surrogates	1	1
(%Recovery) p-Bromofluorobenzene 1,2-Dichloroethane-D4 Toluene-D8	100 94 99	-

25 TO 1250 DATA: A4767 #46 CALI: A4767 #2 SCAHS MIDRIC DATA: A4767 #46 SCANS 25 TO 11/18/91 20:22:00 CALI: A4767 #2 SAMPLE: MN6 JOB3386 CONDS.: 51A RANGE: G 1,1250 LABEL: N 3, 5.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3 36736. 100.07 591 893 268 PIC 1. 17094 11999 2000 1.111

### GAS CHROMATOGRAPHY/MASS SPECTROMETRY VOLATILE LIBRARY COMPARISON SEARCH

SAMPLE I.D.:MW-6

JOB#:91-3386.10

FILE: A4767

scan #	COMPOUND NAME	ESTIMATED CONCENTRATION (UNITS= UG/L)
344	1,1,2=TRIMETHYL- 1,2,2- TRIFLUOROETHANE (76-13-1)	4.3

#### RADIAN CORPORATION AQUEOUS MATRIX

#### METHOD 624 - PRIORITY POLLUTANT VOLATILE ORGANICS

LAB NAME RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE DATE 11/15/9:

ANALYSIS DATE 11/18/9

SAMPLE NO. MW-7

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Acrolein Acrylonitrile Benzene Bromodichloromethane Bromoform Bromomethane Carbon Tetrachloride Chlorobenzene Chlorodibromomethane Chloroethane 2-Chloroethylvinyl ether Chloroform Chloromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethene trans-1,2-Dichloropropene trans-1,3-Dichloropropene Ethylbenzene Methylene chloride Tetrachloroethane 1,1,2-Trichloroethane 1,1,2-Trichloroethane 1,1,2-Trichloroethane 1,1,2-Trichloroethane Trichloroethene Vinyl chloride	100 100 5.0 5.0 5.0 5.0 5.0 5.0 5.0 1.2 10 0.98 10 57 5.0 460 0.69 5.0 5.0 5.0 5.0 5.0 5.0 1.5 5.0 1.5 2,700 1.9 1.9	מנים * נופנים ממפיני * מי מנים מי מנים מי מי מי מי מי מי מי מי מי מי מי מי מי

DILUTION FACTOR = 1.0 \*DILUTION FACTOR = 50

#### RADIAN CORPORATION ADDITIONAL VOLATILE ORGANICS

LAB NAME RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE DATE 11/15/97

SAMPLE NO. MW-7

ANALYSIS DATE 11/18/5.

COMPOUND (Units of Measure = UG/L )	RESULT	Q
m-Xylene o/p-Xylene *	5.0 5.0	U

DILUTION FACTOR = 1.0 CHROMATOGRAPHICALLY ORTHO-XYLENE AND PARA-XYLENE COELUTE.

# AQUEOUS MATRIX METHOD 624 - PRIORITY POLLUTANT VOLATILE ORGANICS

LAB NAME RECRA ENVIRONMENTAL INC. JOB NO. 91-3386

SAMPLE NO. MW-7

SAMPLE DATE 11/15/91

ANALYSIS DATE 11/18/9:

		RESULT	Q
COMPOUND			
Internal Standards			
(%Recovery) Bromochloromethane 1,4-Difluorobenzene Chlorobenzene-D5		94 92 91	
Surrogates	į		
(%Recovery) p-Bromofluorobenzene 1,2-Dichloroethane-D4 Toluene-D8	-	99 99 99	-

DATA: A4768 #46 CALI: A4768 #2 MIDRIC 11/18/91 21:06:00 SAMPLE: MM7 JOB3386 CONDS.: 51A RANGE: G 1,1250 L 1,1250 LABEL: N 3, 5.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3 2000890 100.07 F10

25 TO 1250

1000

SCAN5

25 TO 1250 SCANS DATA: A4781 #46 CALI: A4781 #2 MIDRIC 11/19/91 16:02:00 CALI: A4781 #2

SAMPLE: MN7DL JOB3386

CONDS.: 51A

RANGE: G 1/1250 LABEL: N 3, 5.0 QUAN: A 0, 1.0 J 0 BASE: U'20, 3 41344 100.07 710 748 896 268 RIC 355 1 900 Läfan 67979418

### GAS CHROMATOGRAPHY/MASS SPECTROMETRY VOLATILE LIBRARY COMPARISON SEARCH

SAMPLE I.D.:MW-7

JOB#:91-3386.7 FILE:A4768/A4781

SCAN #	COMPOUND NAME	ESTIMATED CONCENTRATION (UNITS= UG/L)

#### AQUEOUS MATRIX METHOD 624 - PRIORITY POLLUTANT VOLATILE ORGANICS

LAB NAME RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

ANALYSIS DATE 11/18/91

SAMPLE DATE 11/15/91

SAMPLE NO. MW-8

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Acrolein Acrylonitrile Benzene Bromodichloromethane Bromoform Bromomethane Carbon Tetrachloride Chlorobenzene Chlorodibromomethane Chloroethane 2-Chloroethylvinyl ether Chloroform Chloromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethene trans-1,2-Dichloropropane Cis-1,3-Dichloropropane Cis-1,3-Dichloropropene Ethylbenzene Methylene chloride Tetrachloroethene 1,1,2,2-Tetrachloroethane Toluene 1,1,1-Trichloroethane 1,1,1-Trichloroethane Trichloroethene Vinyl chloride	100 100 5.0 5.0 5.0 10 5.0 10 10 10 10 10 10 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.	ממס *ממממממממ מ מממממממממממ

DILUTION FACTOR = 1.0 \*DILUTION FACTOR = 4.0

#### RADIAN CURPURALLUM ADDITIONAL VOLATILE ORGANICS

LAB NAME RECRA ENVIRONMENTAL INC. JOB NO. 91-3386

SAMPLE NO. MW-8

ANALYSIS DATE 11/18/

SAMPLE DATE 11/15/9:

COMPOUND (Units of Measure = UG/L )	RESULT	Q
m-Xylene	5.0	U
o/p-Xylene *	5.0	U

DILUTION FACTOR = 1.0 CHROMATOGRAPHICALLY ORTHO-XYLENE AND PARA-XYLENE COELUTE.

## AQUEOUS MATRIX METHOD 624 - PRIORITY POLLUTANT VOLATILE ORGANICS

LAB NAME RECRA ENVIRONMENTAL INC.

JOB NO.

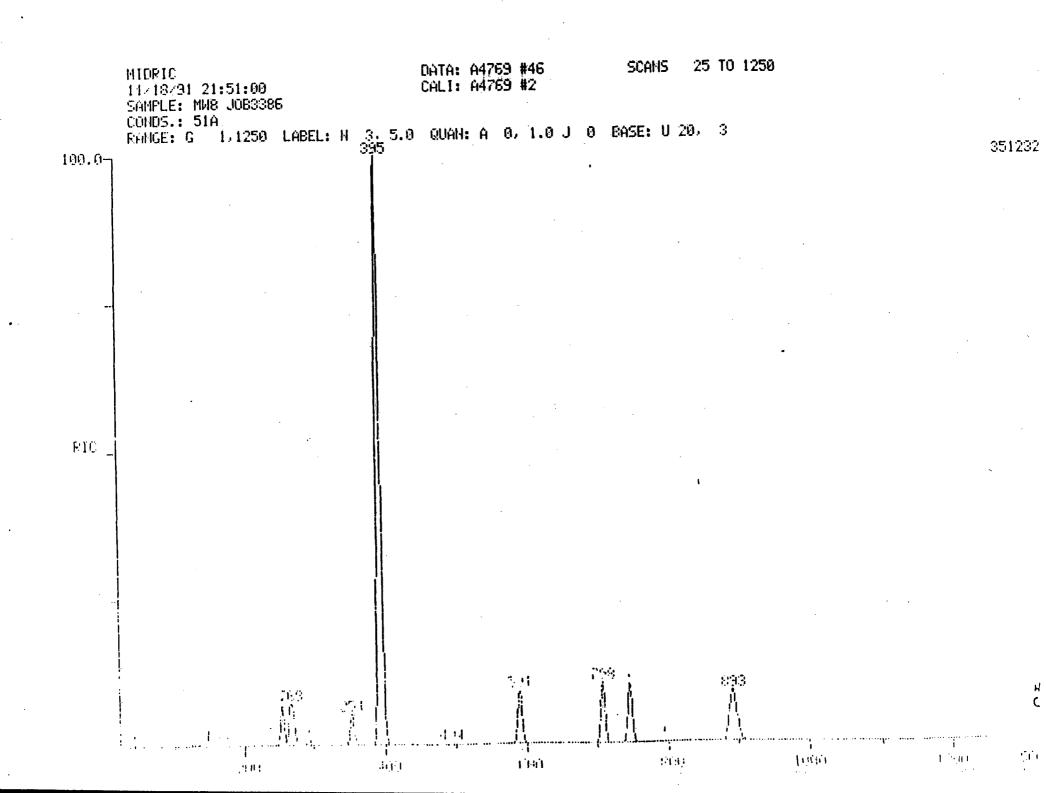
91-3386

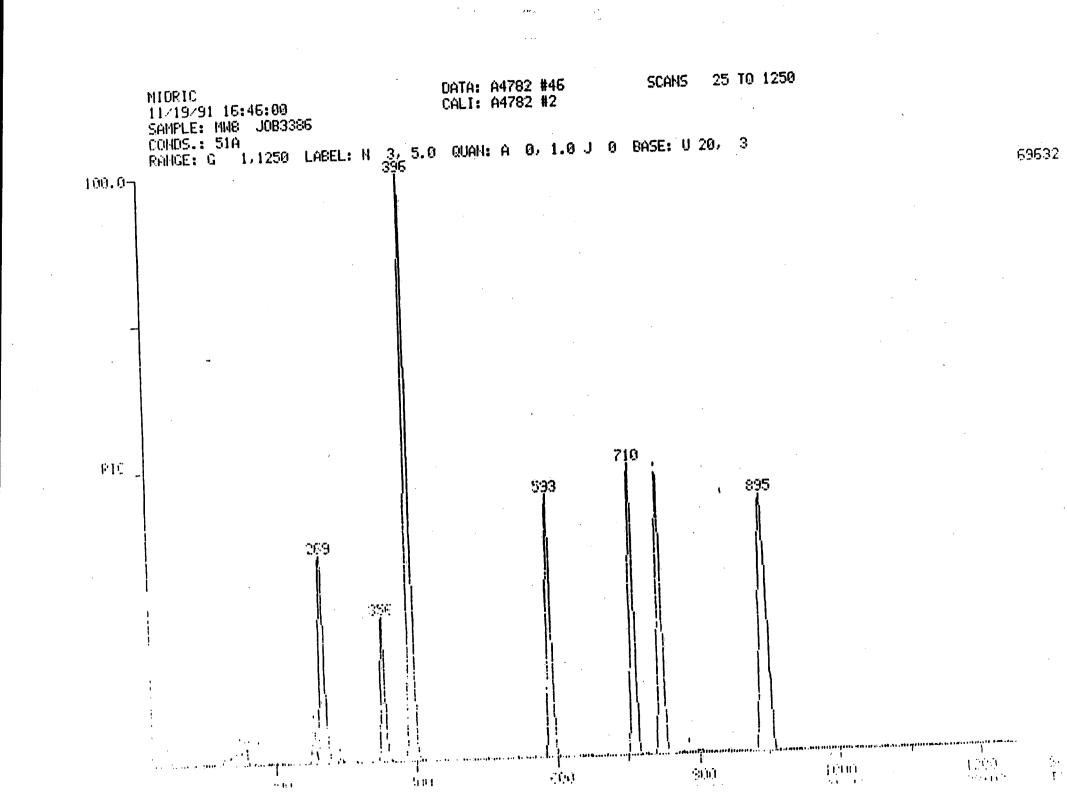
SAMPLE DATE 11/15/9

SAMPLE NO. MW-8

ANALYSIS DATE 11/18/9

COMPOUND	RESULT	Q
Internal Standards		
(%Recovery) Bromochloromethane 1,4-Difluorobenzene Chlorobenzene-D5 Surrogates	92 89 89	
(*Recovery) p-Bromofluorobenzene 1,2-Dichloroethane-D4 Toluene-D8	102 95 97	-





## GAS CHROMATOGRAPHY/MASS SPECTROMETRY VOLATILE LIBRARY COMPARISON SEARCH

SAMPLE I.D.:MW-8

JOB#:91-3386.2 FILE:A4769/A4782

SCAN #	COMPOUND NAME	ESTIMATED CONCENTRATION (UNITS= UG/L)
1		

#### RADIAN CORPORATION AQUEOUS MATRIX METHOD 624 - PRIORITY POLLUTANT VOLATILE ORGANICS

LAB NAME RECRA ENVIRONMENTAL INC. JOB NO. 91-3386

SAMPLE NO. MW-9

SAMPLE DATE 11/15/91

ANALYSIS DATE 11/18/91

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Acrolein Acrylonitrile Benzene Bromodichloromethane Bromoform Bromomethane Carbon Tetrachloride Chlorobenzene Chlorodibromomethane Chloroethane 2-Chloroethylvinyl ether Chloroform Chloromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethene trans-1,2-Dichloroethene trans-1,3-Dichloropropene trans-1,3-Dichloropropene trans-1,3-Dichloropropene Ethylbenzene Methylene chloride Tetrachloroethene 1,1,2,2-Tetrachloroethane 1,1,1-Trichloroethane 1,1,2-Trichloroethane Trichloroethene Vinyl chloride	100 100 5.0 5.0 10 5.0 10 10 10 10 10 10 10 10 10 10 10 10 10	ם מ ממממממממממממ מממממממממממממממממממממ

DILUTION FACTOR = 1.0

### RADIAN CORPORATION ADDITIONAL VOLATILE ORGANICS

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE DATE 11/15/91

ANALYSIS DATE 11/18/9

SAMPLE NO. MW-9

COMPOUND (Units of Measure = UG/L )	RESULT	Q
m-Xylene o/p-Xylene *	5.0 5.0	U U

DILUTION FACTOR = 1.0 CHROMATOGRAPHICALLY ORTHO-XYLENE AND PARA-XYLENE COELUTE.

### RADIAN CORPORATION AQUEOUS MATRIX METHOD 624 - PRIORITY POLLUTANT VOLATILE ORGANICS

LAE NAME RECRA ENVIRONMENTAL INC.

JOB NO.

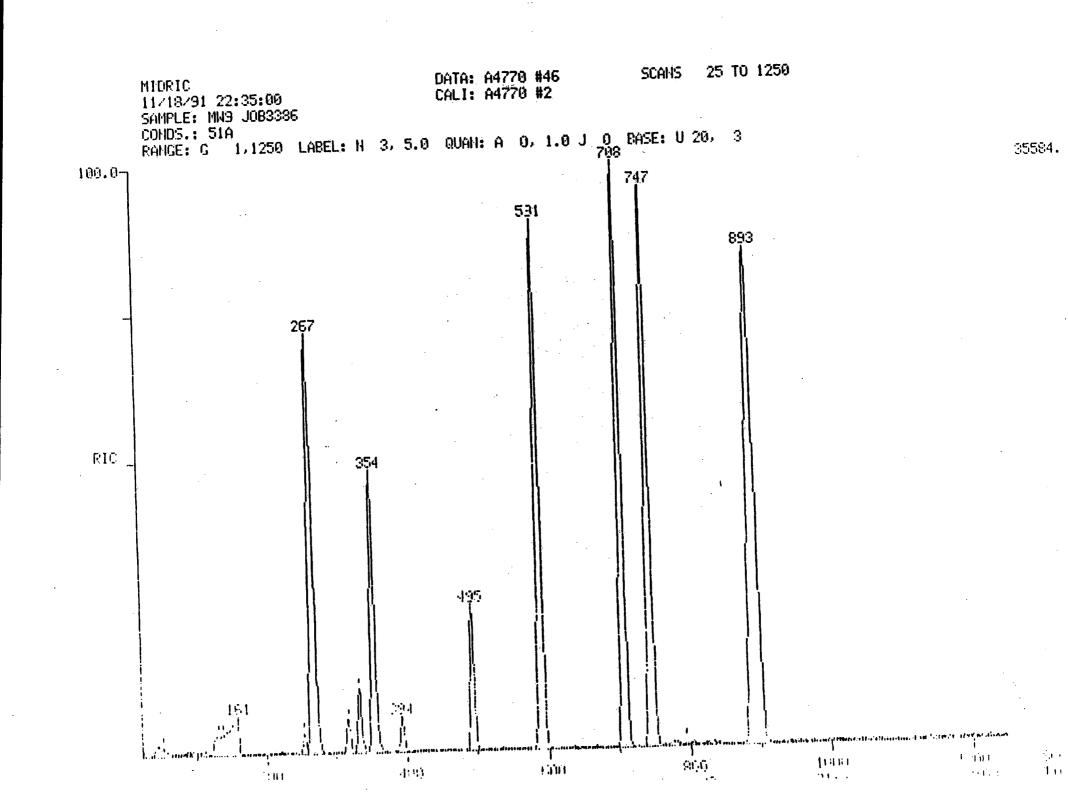
91-3386

SAMPLE NO. MW-9

SAMPLE DATE 11/15/91

ANALYSIS DATE 11/18/91

COMPONENT	RESULT	Ø
COMPOUND		
Internal Standards		
(%Recovery) Bromochloromethane 1,4-Difluorobenzene Chlorobenzene-D5	86 86 87	
Surrogates		1
(%Recovery) p-Bromofluorobenzene 1,2-Dichloroethane-D4 Toluene-D8	101 101 98	-



## GAS CHROMATOGRAPHY/MASS SPECTROMETRY VOLATILE LIBRARY COMPARISON SEARCH

SAMPLE I.D.:MW-9

JOB#:91-3386.9

FILE: A4770

SCAN #	COMPOUND NAME	ESTIMATED CONCENTRATION (UNITS= UG/L)
	,	
	-	

# AQUEOUS MATRIX METHOD 624 - PRIORITY POLLUTANT VOLATILE ORGANICS

LAB NAME RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE NO. MW-10

SAMPLE DATE 11/15/91

ANALYSIS DATE 11/18/ !

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Acrolein Acrylonitrile Benzene Bromodichloromethane Bromoform Bromomethane Carbon Tetrachloride Chlorobenzene Chlorodibromomethane Chloroethane 2-Chloroethylvinyl ether Chloroform Chloromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethene trans-1,2-Dichloroethene 1,2-Dichloropropane Cis-1,3-Dichloropropene Ethylbenzene Methylene chloride Tetrachloroethene 1,1,2,2-Tetrachloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane Toluene 1,1,2-Trichloroethane Trichloroethene Vinyl chloride	100 100 5.0 5.0 10 5.0 10 10 10 10 10 10 10 10 10 1	מממלמממממממממממממממממממממממממממממממממממ

DILUTION FACTOR = 1.0

#### KADIAN CONFORMITOR ADDITIONAL VOLATILE ORGANICS

JOB NO. 91-3386

LAB NAME RECRA ENVIRONMENTAL INC.

SAMPLE NO. MW-10

SAMPLE DATE 11/15/91

ANALYSIS DATE 11/18/91

COMPOUND (Units of Measure = UG/L )	RESULT	Q
m-Xylene	5.0	บ
o/p-Xylene *	5.0	บ

DILUTION FACTOR = 1.0 CHROMATOGRAPHICALLY ORTHO-XYLENE AND PARA-XYLENE COELUTE.

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### RADIAN CORPORATION AQUEOUS MATRIX METHOD 624 - PRIORITY POLLUTANT VOLATILE ORGANICS

JOB NO.

91-3386

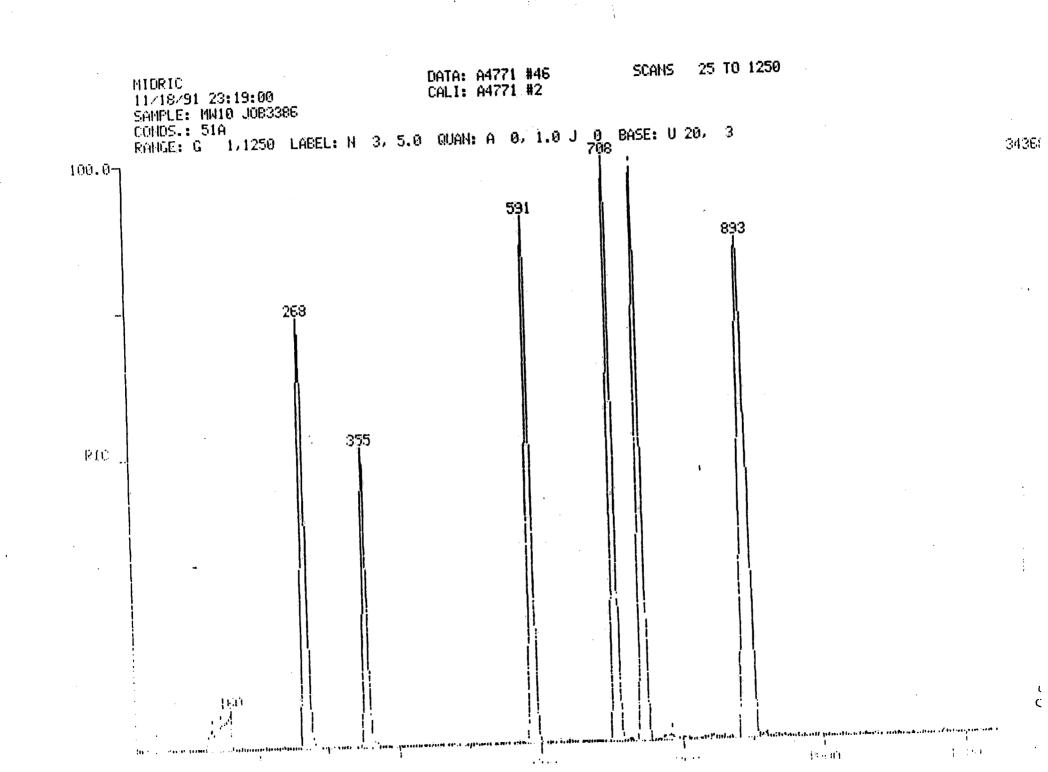
LAB NAME RECRA ENVIRONMENTAL INC.

SAMPLE DATE 11/15/91

SAMPLE NO. MW-10

ANALYSIS DATE 11/18/9\_

	RESULT	Q
COMPOUND		
Internal Standards		
(%Recovery) Bromochloromethane 1,4-Difluorobenzene Chlorobenzene-D5	88 85 86	
Surrogates		
(%Recovery) p-Bromofluorobenzene 1,2-Dichloroethane-D4 Toluene-D8	98 96 98	-



## GAS CHROMATOGRAPHY/MASS SPECTROMETRY VOLATILE LIBRARY COMPARISON SEARCH

SAMPLE I.D.:MW-10

JOB#:91-3386.8

FILE: A4771

SCAN #	COMPOUND NAME	ESTIMATED CONCENTRATION (UNITS= UG/L)
	-	
		,

### RADIAN CORPORATION AQUEOUS MATRIX METHOD 624 - PRIORITY POLLUTANT VOLATILE ORGANICS

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE NO. FIELD BLANK

SAMPLE DATE 11/15/91

ANALYSIS DATE 11/18/9:

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Acrolein Acrylonitrile Benzene Bromodichloromethane Bromomethane Carbon Tetrachloride Chlorobenzene Chlorodibromomethane Chloroethane 2-Chloroethylvinyl ether Chloroform Chloromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethene trans-1,2-Dichloroethene trans-1,3-Dichloropropene trans-1,3-Dichloropropene trans-1,3-Dichloropropene Ethylbenzene Methylene chloride Tetrachloroethene 1,1,2,2-Tetrachloroethane 1,1,1-Trichloroethane 1,1,2-Trichloroethane Trichloroethene Vinyl chloride	100 100 5.0 5.0 5.0 10 5.0 10 10 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.	מפממממממממממממממממממממ

DILUTION FACTOR = 1.0

#### RADIAN CORPORATION ADDITIONAL VOLATILE ORGANICS

LAB NAME RECRA ENVIRONMENTAL INC.

JOB NO. 91-3386

SAMPLE DATE 11/15/

ANALYSIS DATE 11/18/91

SAMPLE NO. FIELD BLANK

COMPOUND (Units of Measure = UG/L )	RESULT	Q
m-Xylene o/p-Xylene *	5.0 5.0	U U

DILUTION FACTOR = 1.0 CHROMATOGRAPHICALLY ORTHO-XYLENE AND PARA-XYLENE COELUTE.

130

# RADIAN CORPORATION AQUEOUS MATRIX METHOD 624 - PRIORITY POLLUTANT VOLATILE ORGANICS

LAB NAME

RECRA ENVIRONMENTAL INC.

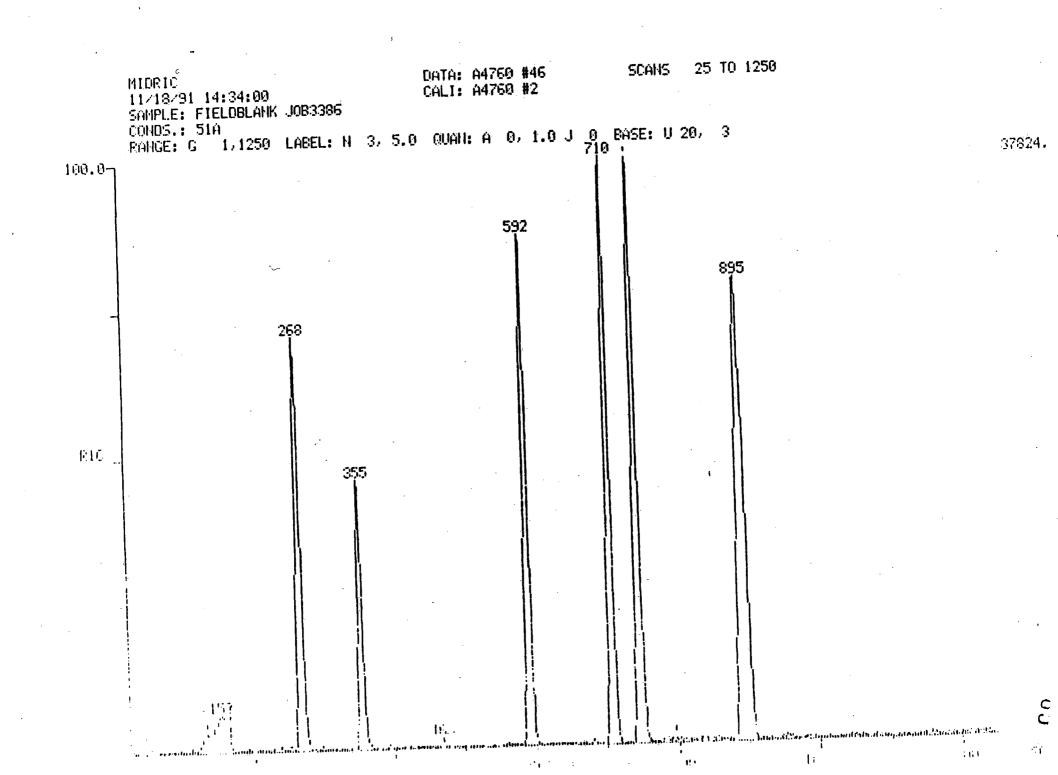
JOB NO.

91-3386

SAMPLE DATE 11/15/9 ANALYSIS DATE 11/18/9

SAMPLE NO. FIELD BLANK

	RESULT	Q
COMPOUND		
Internal Standards		
(%Recovery) Bromochloromethane 1,4-Difluorobenzene Chlorobenzene-D5	91 92 93	
Surrogates		
(%Recovery) p-Bromofluorobenzene 1,2-Dichloroethane-D4 Toluene-D8	101 97 100	-



## GAS CHROMATOGRAPHY/MASS SPECTROMETRY VOLATILE LIBRARY COMPARISON SEARCH

SAMPLE I.D.:FIELD BLANK

JOB#:91-3386.13

FILE:A4760

SCAN #	COMPOUND NAME	ESTIMATED CONCENTRATION (UNITS= UG/L)
·		

## RADIAN CORPORATION AQUEOUS MATRIX METHOD 624 - PRIORITY POLLUTANT VOLATILE ORGANICS

RECRA ENVIRONMENTAL INC. LAB NAME

JOB NO.

91-3386

SAMPLE DATE 11/15/9

SAMPLE NO. TRIP BLANK

ANALYSIS DATE 11/18/

		l i	1
COMPOUND (Units of Measure = UG/L )	RESULT	Q	
Acrolein Acrylonitrile Benzene Bromodichloromethane Bromomethane Carbon Tetrachloride Chlorobenzene Chlorodibromomethane Chloroethane 2-Chloroethylvinyl ether Chloroform Chloromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethene trans-1,2-Dichloroethene trans-1,3-Dichloropropene Cis-1,3-Dichloropropene Ethylbenzene Methylene chloride Tetrachloroethene 1,1,2-Tetrachloroethane 1,1,1-Trichloroethane 1,1,1-Trichloroethane Trichloroethene Vinyl chloride	100 100 5.0 5.0 10 5.0 10 5.0 10 5.0 10 5.0 10 5.0 10 5.0 5.0 10 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.	מממממממממממממממממממממממממ	

DILUTION FACTOR = 1.0

## ADDITIONAL VOLATILE ORGANICS

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE DATE 11/15/91

SAMPLE NO. TRIP BLANK

ANALYSIS DATE 11/18/91

COMPOUND (Units of Measure = UG/L )	RESULT	Q
m-Xylene o/p-Xylene *	5.0 5.0	บ บ
o/p-Xylene *		

DILUTION FACTOR = 1.0 CHROMATOGRAPHICALLY ORTHO-XYLENE AND PARA-XYLENE COELUTE.

130

#### RADIAN CORPORATION AQUEOUS MATRIX

#### METHOD 624 - PRIORITY POLLUTANT VOLATILE ORGANICS

JOB NO.

LAB NAME RECRA ENVIRONMENTAL INC.

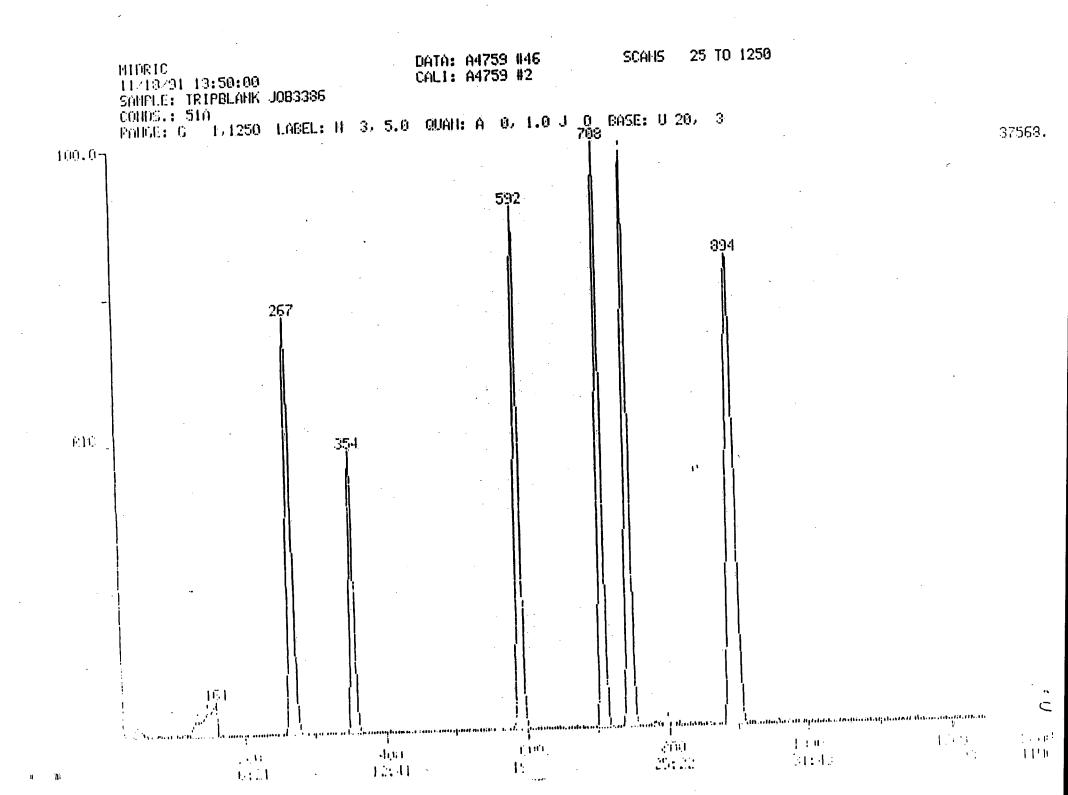
91-3386

SAMPLE NO. TRIP BLANK

ANALYSIS DATE 11/18/5\_

SAMPLE DATE 11/15/91

	RESULT	Q
COMPOUND		
Internal Standards		
(%Recovery) Bromochloromethane 1,4-Difluorobenzene Chlorobenzene-D5	96 92 96	
Surrogates		
(%Recovery) p-Bromofluorobenzene 1,2-Dichloroethane-D4 Toluene-D8	98 94 95	-



## GAS CHROMATOGRAPHY/MASS SPECTROMETRY VOLATILE LIBRARY COMPARISON SEARCH

SAMPLE I.D.:TRIP BLANK

JOB#:91-3386.14

FILE: A4759

SCAN #	COMPOUND NAME	ESTIMATED CONCENTRATION (UNITS= UG/L)
	_	

#### RADIAN CORPORATION AQUEOUS MATRIX METHOD 624 - PRIORITY POLLUTANT VOLATILE ORGANICS

LAB NAME RECRA ENVIRONMENTAL INC. JOB NO. 91-3386 DESC VOLATILE METHOD BLANK SAMPLE NO. VBLK53

ANALYSIS DATE 11/19/91

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Acrolein Acrylonitrile Benzene Bromodichloromethane Bromomethane Carbon Tetrachloride Chlorobenzene Chlorodibromomethane Chloroethane 2-Chloroethylvinyl ether Chloroform Chloromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethene trans-1,2-Dichloropropene trans-1,3-Dichloropropene Ethylbenzene Methylene chloride Tetrachloroethane 1,1,2-Trichloroethane 1,1,1-Trichloroethane 1,1,2-Trichloroethane Trichloroethene Vinyl chloride	00055555555555555555555555555555555555	ממסממממממממממממממממממממממ

DILUTION FACTOR = 1.0

LAB NAME RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

DESC

VOLATILE METHOD BLANK

SAMPLE NO. VELK53

ANALYSIS DATE 11/19/11

COMPOUND (Units of Measure = UG/L )	RESULT	Q
m-Xylene o/p-Xylene *	5.0 5.0	<del></del>

DILUTION FACTOR = 1.0 CHROMATOGRAPHICALLY ORTHO-XYLENE AND PARA-XYLENE COELUTE.

130

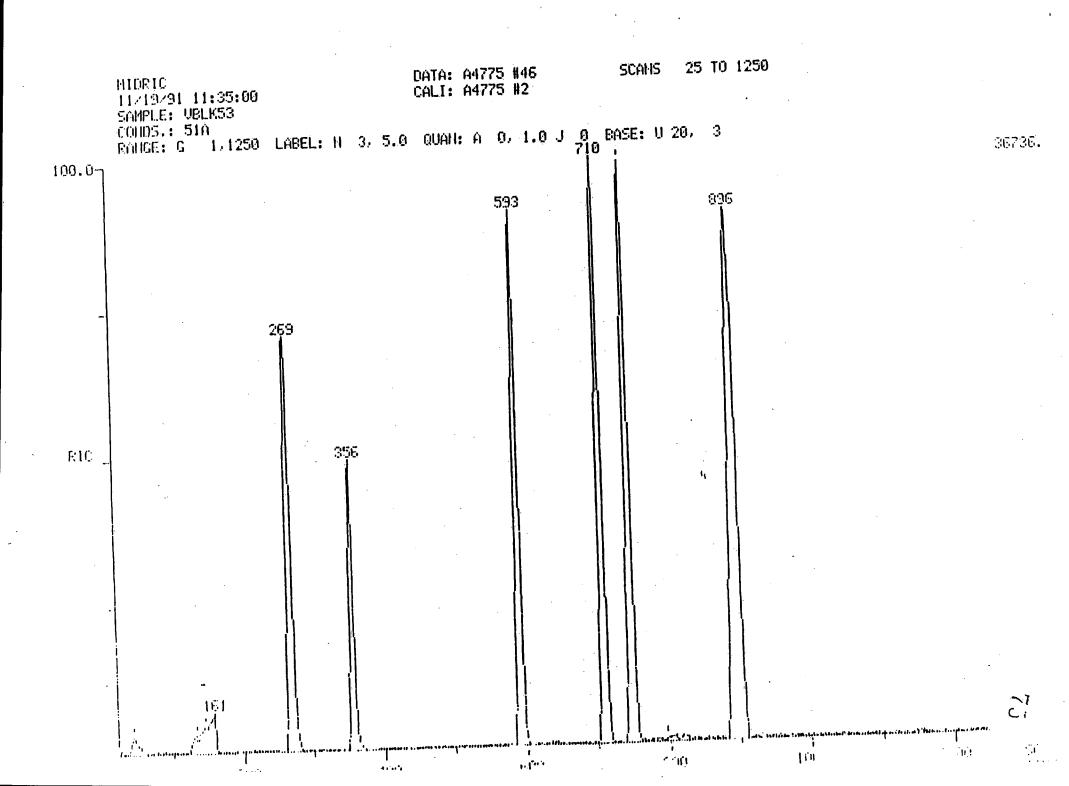
### RADIAN CORPORATION AQUEOUS MATRIX METHOD 624 - PRIORITY POLLUTANT VOLATILE ORGANICS

LAB NAME RECRA S JOB NO. 91-3386 DESC VOLATION SAMPLE NO. VELKES

RECRA ENVIRONMENTAL INC. 91-3386 VOLATILE METHOD BLANK

ANALYSIS DATE 11/19/91

		RESULT	Ç
COMPOUND			
Internal Standards			
(%Recovery) Bromochloromethane 1,4-Difluorobenzene Chlorobenzene-D5		99 95 96	
Surrogates			
(%Recovery) p-Bromofluorobenzene 1,2-Dichloroethane-D4 Toluene-D8	-	102 100 98	-



#### GAS CHROMATOGRAPHY/MASS SPECTROMETRY VOLATILE LIBRARY COMPARISON SEARCH

SAMPLE I.D.: VELK 53

JOB#:91-3386.3

FILE: A4775

SCAN #	COMPOUND NAME	ESTIMATED CONCENTRATION (UNITS= UG/L)
	·	
·		·

SEMI-VOLATILE DATA

#### RADIAN CORPORATION AQUEOUS MATRIX METHOD 625 BASE/NEUTRAL/ACID EXTRACTABLES

LAB NAME RECRA ENVIRONMENTAL INC. JOB NO. 91-3386

SAMPLE DATE 11/15/01 EXTRACTION DATE 11/22/: L ANALYSIS DATE 11/30/-1

SAMPLE NO. MW-1

	- <del></del>	
COMPOUND (Units of Measure = UG/L )	RESULT	Q
Indeno(1,2,3-cd)pyrene Isophorone 2-Methyl-4,6-dinitrophenol Naphthalene Nitrobenzene 2-Nitrophenol 4-Nitrophenol N-nitrosodi-n-propylamine N-Nitrosodimethylamine N-Nitrosodiphenylamine Pentachlorophenol Phenanthrene Phenol Pyrene 1,2,4-Trichlorobenzene 2,4,6-Trichlorophenol	14 14 71 14 14 14 71 14 14 14 14 14 14	ממממממממממממממ

DILUTION FACTOR = 1.0 EXTRACTION VOLUME = 700 ML

#### المستعدد المراكات المستعددات METHOD 8270 - SELECTED SEMIVOLATILE ORGANICS

LAB NAME RECRA ENVIRONMENTAL INC. JOB NO. 91-3386

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/91 ANALYSIS DATE 11/30/91

SAMPLE NO. MW-1

COMPOUND (Units of Measure = UG/L )	RESULT	Č.
Hydroquinone	14	Ū

DILUTION FACTOR = 1.0 EXTRACTION VOLUME = 700 ML

26

## RADIAN CORPORATION AQUEOUS MATRIX METHOD 625

## BASE/NEUTRAL/ACID EXTRACTABLES

JAB NAME JOB NO.

RECRA ENVIRONMENTAL INC.

NO. 91-3386

SAMPLE DATE 11/15/97 EXTRACTION DATE 11/22/97 ANALYSIS DATE 11/30/91

SAMPLE NO. MW-1

	RESULT	Q
COMPOUND		
Internal Standards		
(%Recovery) 1,4-Dichlorobenzene-D4 Naphthalene-D8 Acenaphthene-D10 Phenanthrene-D10 Chrysene-D12 Perylene-D12	97 95 105 109 78 87	
(*Recovery) 2-Fluorophenol Phenol-D5 2,4,6-Tribromophenol Nitrobenzene-D5 2-Fluorobiphenyl Terphenyl-D14	49 33 67 67 65 92	-

Dala FROM CILE: 71600

SCANS 30.0 TO 2520 ACQUIRED: 11/30/91 18:46:00 CALL: 71609 #3

COMPLE: NWI JOB 3386 API4436 ST COMPS: AUTOSAMPLE ISON

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### GAS CHROMATOGRAPHY/MASS SPECTROMETRY EXTRACTABLE LIBRARY COMPARISON SEARCH

SAMPLE I.D.:MW-1

JOB#:91-3386.21 FILE:7160W

SCAN #	COMPOUND NAME	ESTIMATED CONCENTRATION (UNITS= UG/L)
,		
	-	
,		

#### RADIAN CORPORATION AQUEOUS MATRIX METHOD 625 BASE/NEUTRAL/ACID EXTRACTABLES

RECRA ENVIRONMENTAL INC.

91-3386

11/2

LAB NAVE : JOB NO. DESC MW-1 FIELD DUP

SAMPLE NO. FIELD DUP

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/91 ANALYSIS DATE 11/30/91

COMPOUND (Units of Measure = UG/L	)	RESULT	Q
(Units of more		14	U
cenaphthene		14	<u>U</u>
cenaphthylene		14	U
inthracene		14	U
lenzo (a) anthracene		14	ש
lenzo(b) fluoranthene		14	Ū
enzo(k) fluoranthene		14	Ū
lenzo(a) nyrene		14	Ū
Benzo(g,h,i)perylene		110	U
Renzidine	_	14	Ū
is (2-chloroethyl) ether	•	14	ប
u a /o ahlorethoxy)metname	•	14	<u> </u>
sin (a chi oroi conrodVI) ettlei		14	Ū
Bis (2-ethylhexyl) phthalate		14	שו
-Bromophenylphenylether		14	Ū
Butyl benzyl phthalate	,	14	ט
1-Chloro-3-methylphenol		14	Ū
- CUIOCO-3-Mermy-breeze		14	Ū
2-Chloronaphthalene		14	Ū
2-Chlorophenol		14	l ប
4-Chlorophenylphenylether		14	ָ ק
Chrysene	·		ט
Dibenzo (a, h) anthracene		14	שׁן
Di-n-butyl phthalate		14	l g
1 2-Dichloropenzene		14	
1,3-Dichlorobenzene		14	Ū
1,4-Dichlorobenzene		28	Ū
3,3'-Dichlorobenzidine		14	U
2.4-Dichlorophenol	• 4	14	ប
Diethylphthalate		14	U
2.4-Dimethylphenol		14	U
Dimethylphthalate	·	71	<b>ט</b>
2 4-ninitrophenol		110	U
1 2-Diphenyl hydrazine		14	ប
2.4-Dinitrotoluene		14	ប
2,6-Dinitrotoluene		14	U
Di-n-octylphthalate	·	14	Ū
Fluoranthene		14	ប
Fluorene	$\epsilon$	14	ប
Hexachlorobenzene		14	บั
Hexachlorobutadiene		14	โซ
Hexachlorocyclopentadiene		14	Ü
Hexachloroethane		1	

DILUTION FACTOR = 1.0 EXTRACTION VOLUME = 700 ML

#### RADIAN CORPORATION 5. AQUEOUS MATRIX METHOD 625 BASE/NEUTRAL/ACID EXTRACTABLES

RECRA ENVIRONMENTAL INC. LAE NAME

91-3386

JOB NO. DESC MW-1 FIELD DUP

SAMPLE NO. FIELD DUP

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/01 ANALYSIS DATE 11/30/9

COMPOUND (Units of Measure = UG/L )	RESULT	Ç
Indeno(1,2,3-cd)pyrene Isophorone 2-Methyl-4,6-dinitrophenol Naphthalene Nitrobenzene 2-Nitrophenol 4-Nitrophenol N-nitrosodi-n-propylamine N-Nitrosodimethylamine N-Nitrosodiphenylamine Pentachlorophenol Phenanthrene Phenol Pyrene 1,2,4-Trichlorobenzene 2,4,6-Trichlorophenol	14 71 14 14 14 14 14 14 14 14 14	ממממממממממממממ

DILUTION FACTOR = 1.0 EXTRACTION VOLUME = 700 ML

#### KHULLEL COLL CLULLER METHOD 8270 - SELECTED SEMIVOLATILE ORGANICS

LAB NAME RECRA ENVIRONMENTAL INC.

JOB NO. 91-3386

DESC MW-1 FIELD DUP

SAMPLE NO. FIELD DUP

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/91 ANALYSIS DATE 11/30/91

COMPOUND (Units of Measure = UG/L )	RESULT	Ç
	14	U
Hydroquinone	<u> </u>	<u></u>

DILUTION FACTOR = 1.0 EXTRACTION VOLUME = 700 MI.

#### RADIAN CORPORATION AQUEOUS MATRIX METHOD 625 BASE/NEUTRAL/ACID EXTRACTABLES

RECRA ENVIRONMENTAL INC. LAE NAME

JOE NO.

DESC MW-1 FIELD DUP SAMPLE NO. FIELD DUP

91-3386

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/9
ANALYSIS DATE 11/30/9

		RESULT	Ç
COMPOUND			
Internal Standards			
(%Recovery) 1,4-Dichlorobenzene-D4 Naphthalene-D8 Acenaphthene-D10 Phenanthrene-D10 Chrysene-D12 Perylene-D12	-	97 94 103 109 75 89	
Surrogates		,	_
(%Recovery) 2-Fluorophenol Phenol-D5 2,4,6-Tribromophenol Nitrobenzene-D5 2-Fluorobiphenyl Terphenyl-D14		49 33 76 80 74 103	

DOTO FROM FILE: 716111,

SCAHS 360 10 2520 ACOUTPED: 11/30/91 19:37:00 CALI: 7161M #3

COURS: MUTETELDOUP JOB 3386 AP14438/39

Limb and arise annua annua.	100,450	3 (2-14) §19§§§§16) (0).	SUPPOCATE
Falls	C 130 1 FORTHLOPOSENZENE D4	SURROGHT	
	CT40 HOPHTHOLENE D8	INTERNOL STANDON	
a	0.82	25 2-FILUOPOBIPHEHYL	SUPPOSAT
16:40	CISO ACENIAPHTHENE DIO	INTERHOL STOHORD	
	CS55 2,4,6-TRIBROMOPHEN	IOL SURPOGNIE	
·	CISO PHENANTHPENE DIO	THIERNAL STANDARD	•
1503		(1	:
	CS30 TEPPHENYL DI	14 50000	ward E
	CITO CHRYSENE DIX	HATCHOOL STOUDORD	
19901 1923		THE PROPERTOR DOMEST	

## GAS CHROMATOGRAPHY/MASS SPECTROMETRY EXTRACTABLE LIBRARY COMPARISON SEARCH

SAMPLE I.D.:MW-1 FIELD DUP

JOB#:91-3386.22

FILE: 7161W

SCAN #	COMPOUND NAME	ESTIMATED CONCENTRATION (UNITS= UG/L)

## RADIAN CORPORATION AQUEOUS MATRIX METHOD 625

BASE/NEUTRAL/ACID EXTRACTABLES

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE NO. MW-2

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/91 ANALYSIS DATE 11/30/91

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Acenaphthene Acenaphthylene Anthracene Benzo(a) anthracene Benzo(b) fluoranthene Benzo(c) fluoranthene Benzo(c) pyrene Benzo(g,h,i) perylene Benzo(g,h,i) perylene Benzidine Bis(2-chloroethyl) ether Bis(2-chloroethoxy) methane Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Butyl benzyl phthalate 4-Bromophenylphenylether Butyl benzyl phthalate 4-Chloro-3-methylphenol 2-Chlorophenol 4-Chlorophenol 4-Chlorophenylphenylether Chrysene Dibenzo(a,h) anthracene Di-n-butyl phthalate 1,2-Dichlorobenzene 1,3-Dichlorobenzene 1,4-Dichlorobenzene 1,4-Dichlorobenzene 1,4-Dichlorophenol Diethylphthalate 2,4-Dimethylphthalate 2,4-Dimitrophenol Dimethylphthalate 2,4-Dinitrotoluene Di-n-octylphthalate Fluoranthene Fluorene Hexachlorobenzene Hexachlorobenzene Hexachlorobenzene Hexachlorocyclopentadiene Hexachlorocyclopentadiene Hexachlorocyclopentadiene	14 14 14 14 14 14 14 14 14 14 14 14 14 1	ממממממממממממממממממממממממממממממממממממ

DILUTION FACTOR = 1.0 EXTRACTION VOLUME = 700 ML

### RADIAN CORPORATION AQUEOUS MATRIX METHOD 625 BASE/NEUTRAL/ACID EXTRACTABLES

LAB NAME RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/5 ANALYSIS DATE 11/30/5

SAMPLE NO. MW-2

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Indeno(1,2,3-cd)pyrene Isophorone 2-Methyl-4,6-dinitrophenol Naphthalene Nitrobenzene 2-Nitrophenol 4-Nitrophenol N-nitrosodi-n-propylamine N-Nitrosodimethylamine N-Nitrosodiphenylamine Pentachlorophenol Phenanthrene Phenol Pyrene 1,2,4-Trichlorobenzene 2,4,6-Trichlorophenol	14 14 71 2.4 14 14 71 14 14 71 2.1 14 14 14	ממממתמממממתמממ -

DILUTION FACTOR = 1.0 EXTRACTION VOLUME = 700 ML

#### RADIAN CORPORATION METHOD 8270 - SELECTED SEMIVOLATILE ORGANICS

LAB NAME

RECRA ENVIRONMENTAL INC. 91-3386

JOB NO.

SAMPLE DATE 11/15/9 EXTRACTION DATE 11/22/9 ANALYSIS DATE 11/30/9

SAMPLE NO. MW-2

COMPOUND (Units of Measure = UG/L )	RESULT	Q	
Hydroquinone	14	U	

DILUTION FACTOR = 1.0 EXTRACTION VOLUME = 700 ML

## RADIAN CORPORATION AQUEOUS MATRIX METHOD 625

BASE/NEUTRAL/ACID EXTRACTABLES

LAB NAME

RECRA ENVIRONMENTAL INC.

TOB NO.

91-3386

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/9: ANALYSIS DATE 11/30/9:

SAMPLE NO. MW-2

	RESULT	Q
COMPOUND		
Internal Standards		
(%Recovery) 1,4-Dichlorobenzene-D4 Naphthalene-D8 Acenaphthene-D10 Phenanthrene-D10 Chrysene-D12 Perylene-D12	109 105 119 121 101 116	
Surrogates		
(%Recovery) 2-Fluorophenol Phenol-D5 2,4,6-Tribromophenol Nitrobenzene-D5 2-Fluorobiphenyl Terphenyl-D14	42 33 49 65 66 58	

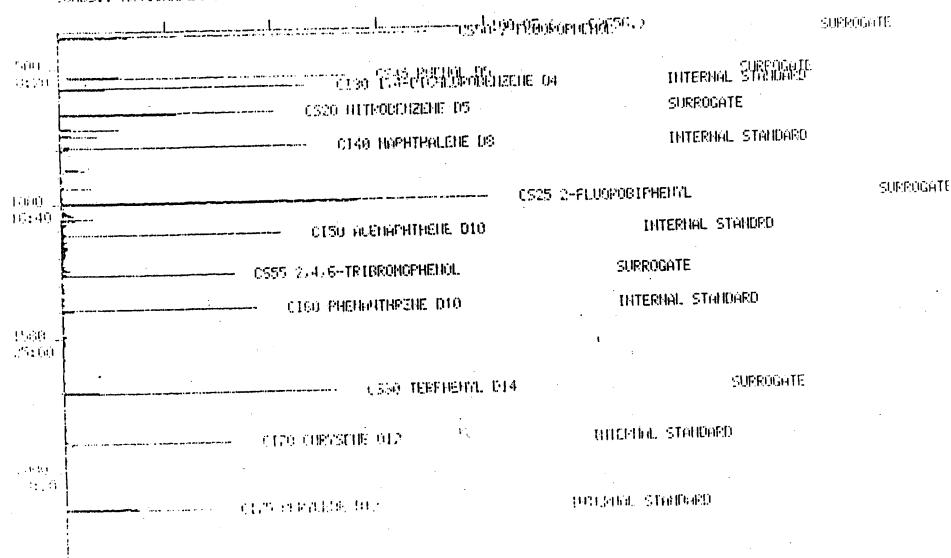
Onto FROM FILE: 7162W

- Contro 300 to 2520 ACCUIPED: 11 30-94 20:28:00

CH. 1: 7162M 40

CHMPLE: NW2 JOB 3306 AP14440 41

CORDS.: AUTOSOMPLE ISON



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# ANALYTICAL RESULTS

# GAS CHROMATOGRAPHY/MASS SPECTROMETRY EXTRACTABLE LIBRARY COMPARISON SEARCH

SAMPLE I.D.:MW-2

JOB#:91-3386.23

FILE: 7162W

	SCAN #	COMPOUND NAME	ESTIMATED CONCENTRATION (UNITS= UG/L)
-	722	UNKNOWN	11
	746	2-FLUORO-4-NITRO PHENOL (403-19-0)	7.3
	938	UNSATURATED HYDROCARBON	6.3
	1053	DIMETHYL NAPHTHALENE ISOMER	6.4

# RADIAN CORPORATION AQUEOUS MATRIX METHOD 625

# BASE/NEUTRAL/ACID EXTRACTABLES

LAB NAME RECRA ENVIRONMENTAL INC.

JOB NO. 91-3386

SAMPLE DATE 11/15/9: EXTRACTION DATE 11/22/9: ANALYSIS DATE 11/30/9:

SAMPLE NO. MW-3

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Ccenaphthene Acenaphthylene Anthracene Benzo(a) anthracene Benzo(b) fluoranthene Benzo(a) pyrene Benzo(a) pyrene Benzidine Bis(2-chloroethyl) ether Bis(2-chloroethyl) ether Bis(2-chloroethyl) pthalate Bis(2-chloroethyl) pthalate 4-Bromophenylphenylether Buyl benzyl phthalate 4-Chloro-3-methylphenol 2-Chloronaphthalene 2-Chlorophenol 4-Chlorophenol 4-Chlorophenol 4-Chlorophenol 5-n-butyl phthalate 1,2-Dichlorobenzene 1,3-Dichlorobenzene 1,3-Dichlorobenzene 1,4-Dichlorobenzidine 2,4-Dintlorobenzidine 2,4-Dintrophenol Diethylphthalate 2,4-Dinitrophenol Diethylphthalate 2,4-Dinitrotoluene Di-n-octylphthalate 2,4-Dinitrotoluene Bi-n-octylphthalate Fluorene Hexachlorobenzene Hexachlorobenzene Hexachlorobenzene Hexachlorobenzene Hexachlorobenzene Hexachlorobenzene Hexachlorobenzene Hexachlorobenzene	14 14 14 14 14 14 14 14 14 14 14 14 14 1	ממממממממממממממממממממממממממממממממממ

DILUTION FACTOR = 1.0 EXTRACTION VOLUME = 700 ML

# RADIAN CORPORATION AQUEOUS MATRIX METHOD 625

# BASE/NEUTRAL/ACID EXTRACTABLES

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/9 ANALYSIS DATE 11/30/9

SAMPLE NO. MW-3

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Indeno(1,2,3-cd)pyrene Isophorone 2-Methyl-4,6-dinitrophenol Naphthalene Nitrobenzene 2-Nitrophenol 4-Nitrophenol N-nitrosodi-n-propylamine N-Nitrosodimethylamine N-Nitrosodiphenylamine Pentachlorophenol Phenol Pyrene 1,2,4-Trichlorobenzene 2,4,6-Trichlorophenol	14 71 14	מטטטטטטטטטטטטטטט

DILUTION FACTOR = 1.0 EXTRACTION VOLUME = 700 ML

# RADIAN CORPORATION METHOD 8270 - SELECTED SEMIVOLATILE ORGANICS

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/91 ANALYSIS DATE 11/30/91

SAMPLE NO. MW-3

COMPOUND (Units of Measure = UG/L )	RESULT	Q
	14	ט
Hydroquinone		<u> </u>

DILUTION FACTOR = 1.0 EXTRACTION VOLUME = 700 ML

- 26

### RADIAN CORPORATION AQUEOUS MATRIX METHOD 625 BASE/NEUTRAL/ACID EXTRACTABLES

JOB NO.

RECRA ENVIRONMENTAL INC.

91-3386

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/9 ANALYSIS DATE 11/30/9

SAMPLE NO. MW-3

COMPOUND	RESULT	Q
Internal Standards		
(%Recovery) 1,4-Dichlorobenzene-D4 Naphthalene-D8 Acenaphthene-D10 Phenanthrene-D10 Chrysene-D12 Perylene-D12 Surrogates	116 113 124 125 90 102	
(%Recovery) 2-Fluorophenol Phenol-D5 2,4,6-Tribromophenol Nitrobenzene-D5 2-Fluorobiphenyl Terphenyl-D14	42 33 49 65 66 58	•





#### AIRBORNE EXPRESS

April 24, 1997

Ms. Mary Anne Rosa
Project Manager
Emergency and Remedial Response Division - Region II
U.S. Environmental Protection Agency
290 Broadway, 19th Floor
New York, New York 10007-1866

Re: Reply to Request for Information on Hazardous Substances at the Kodalux Processing Laboratory, Fair Lawn, New Jersey

Dear Ms. Rosa:

This is in response to your February 26, 1997 letter requesting information regarding the Kodalux Processing Laboratory (facility), located in Fair Lawn, New Jersey. Your request was mailed to the facility at Fair Lawn and thereafter forwarded to Eastman Kodak Company ("Kodak") corporate offices in Rochester, New York for my attention and handling. The status of the facility with respect to Kodak ownership is discussed in the accompanying response. The time to respond to this request was extended to April 26, 1997 by Ms. Amelia Wagner, Esq., of your staff.

As stated in Kodak's January 29, 1991 supplemental response to your office's previous request for information regarding handling of hazardous substances at the facility, four petroleum underground storage tanks and a dry well for the fire suppression system have been removed. These activities have been reported to New Jersey Department of Environmental Protection (NJDEP), case nos. 90 06 15 1528 and 90 05 22 1638.

Upon developing the attached response to your request for information, Kodak has concluded that the following reports inappropriately refer to the usage of trichloroethene (TCE) at the Kodalux Processing Laboratory:



# FILE COPY

Phase II Groundwater Investigation Report Kodalux Processing Laboratory Fair Lawn, New Jersey

Prepared for:

Eastman Kodak Company

Prepared by:

Radian Corporation

February 7, 1992

RADIAN

"PART I

DCN: 92-246-080-02

## PHASE II GROUNDWATER INVESTIGATION REPORT KODALUX PROCESSING LABORATORY FAIR LAWN, NEW JERSEY

## Prepared for:

Mr. Gary Costanzo
Environmental Technical Services
Health and Environment Laboratories
Eastman Kodak Company
Rochester, New York

Prepared by:

Radian Corporation
155 Corporate Woods, Suite 100
Rochester, New York 14623
(716) 292-1870

## TABLE OF CONTENTS

			Page
	EXI	ECUTIVE SUMMARY	ES-1
1.0	INT	RODUCTION	. 1-1
	1.1 1.2	Project Description	. 1-1 . 1-2
2.0	MO	NITORING WELL LOCATIONS	. 2-1
3.0	MO	NITORING WELL AND PILOT BOREHOLE INSTALLATION	. 3-1
•	3.1 3.2 3.3	Methodology - Monitoring Well Drilling Methodology - Pilot Borehole Drilling Results	3-2
4.0	WE	LL DEVELOPMENT	. 4-1
	4.1 4.2 4.3	Methodology Static Water Measurements Groundwater Flow	4_1
5.0	SAM	PLING PROCEDURES	
	5.1 5.2 5.3 5.4 5.5 5.6 5.7	General Sampling Equipment Monitoring Well Sampling Procedures Pilot Borehole Sampling Procedures Drilling Cutting Sampling Procedures Decontamination Analytical Parameters	5-1 5-2 5-4 5-4
6.0	ANA	LYTICAL RESULTS	6-1
	6.1 6.2 6.3 6.4 6.5	Field Data  Monitoring Well Analytical Results  Pilot Borehole Analytical Results  Drilling Cuttings Analytical Results  Quality Assurance/Quality Control	6-1 6-1 6-4
7.0	CON	CLUSIONS	7-1

# TABLE OF CONTENTS (Continued)

	Page
APPENDIX A - NJDEP BEDROCK MONITORING WELL SPECIFICATIONS	. A-1
APPENDIX B - DRILLING LOGS	B-1
APPENDIX C - MONITORING WELL SCHEMATICS	C-1
APPENDIX D - MONITORING WELL CERTIFICATION FORMS	D-1
APPENDIX E - GROUNDWATER DEVELOPMENT RECORDS	E-1
APPENDIX F - ANALYTICAL RESULTS	F-1

# LIST OF FIGURES

Figure 1	Monitoring Well Locations
Figure 2	Groundwater Elevation Map - November 14, 1991
Figure 3	Groundwater Elevation Map - December 19, 1991
Figure 4	Top of Bedrock Elevation Map
Figure 5	Section A-A'
Figure 6	Section B-B'
Figure 7	Analytical Results for Monitoring Wells - November 1991

# LIST OF TABLES

Table 1	Groundwater Elevation Data
Table 2	Field Data for Kodalux Monitoring Wells
Table 3	Organic Compounds Detected in Kodalux Monitoring Wells - November 1991
Table 4	Inorganics Results for Kodalux Wells - November 1991
Table 5	Total Recoverable Petroleum Hydrocarbon Detected in Kodalux Pilot Boreholes - October 1991
Table 6	Kodalux Drilling Cutting Waste Characterization Analytical Results - October 1991
Table 7	Blank Sample Results
Table 8	Field Duplicate Results

4

#### **EXECUTIVE SUMMARY**

A Phase II investigation was conducted at the Kodalux Processing Laboratory in Fair Lawn, New Jersey. This investigation included:

- Advancement of six pilot boreholes (PB-1 through PB-6);
- Collection of groundwater samples from the pilot boreholes for Total Recoverable Petroleum Hydrocarbon (TRPH) analysis;
- Installation of five monitoring wells (MW-6 through MW-10);
- Collection of groundwater samples from new and existing monitoring wells for volatile organics, base/neutral and acid-extractable compounds, total cyanide, formaldehyde, TRPH, silver, and total and hexavalent chromium;
- Collection of one composite sample from drummed drill cuttings for waste characterization; and
- Collection of water elevation data for use in interpretation of site hydrology.

No visual signs of fuel oil were observed in any of the drilling cuttings or groundwater samples collected from the six pilot boreholes. Total recoverable petroleum hydrocarbons (TRPH) was detected in PB-6 at 680  $\mu$ g/L (0.680 mg/L) and was not detected in groundwater samples collected from the other five pilot boreholes.

No zones of detectable vapor concentrations or visual signs of contamination were observed in any of the drilling cuttings from the installed monitoring wells (MW-6 through MW-10). No analytes on the Method 625 Priority Pollutants list were detected above the Contract Required Quantitation Limits (CRQL) in the monitoring well groundwater samples. Up to nine Tentatively Identified Compounds (TICs) were reported for each sample. No hydroquinone was detected in any well sample above the estimated detection limit.

The following analytes on the Method 624 Priority Pollutants list were detected above the CRQL. 1,1,1-Trichlorethane was detected in eight wells. Detected concentrations ranged from 5.5  $\mu$ g/L in MW-4 to 13000  $\mu$ g/L in MW-2. 1,1-Dichloroethane was detected in five wells. Detected concentrations ranged from 8.6  $\mu$ g/L in MW-8 to 110  $\mu$ g/L in MW-3. 1,1-Dichloroethene was detected in four wells, and ranged from 17  $\mu$ g/L (in MW-1) to 460  $\mu$ g/L (in MW-7). Chloroform was detected in three wells at concentrations ranging from 6.0  $\mu$ g/L to a high of 12  $\mu$ g/L (in MW-6). Trichlorethene was detected in three wells. A maximum concentration of 13  $\mu$ g/L was detected in MW-9. Trans-1,2-Dichloroethene was detected at 9.0  $\mu$ g/L in MW-1. Vinyl chloride was detected in MW-3 at 110  $\mu$ g/L. Chloroethane was detected at 15  $\mu$ g/L in MW-2. Benzene was detected at 13  $\mu$ g/L in MW-3. The TICs hexachlorobutadiene and 1,1,2-trimethyl-1,2,2-trifluoroethane were each estimated present in one well.

Seven wells contained detectable levels of TRPH. Concentrations ranged from 610  $\mu$ g/L to 12,000  $\mu$ g/L. MW-2 contained the highest quantity of petroleum hydrocarbons, with 12,000  $\mu$ g/L. MW-1 contained the lowest detected quantity of petroleum hydrocarbons. Formaldehyde was detected in six wells. MW-3 contained the highest quantity of formaldehyde, with 260  $\mu$ g/L. MW-3, MW-6, MW-7 and MW-8 contained total cyanide at concentrations ranging from 0.017 mg/L to 0.24 mg/L. Total silver concentrations ranged from 0.01 mg/L to 0.013 mg/L in MW-4, MW-6, MW-7, and MW-10. MW-1 through MW-7 contained concentrations of total chromium ranging from 0.011 mg/L to 0.093 mg/L. Hexavalent chromium was detected in MW-2 and MW-7 at 0.016 mg/L and 0.028 mg/L, respectively.

No volatile organics, semivolatile organics, or isobutanol were detected in the drill cuttings composite sample. In addition, analyses indicated the cuttings do not exhibit any hazardous waste characteristics.

Groundwater is entering the site predominantly from the east-southeast. A localized groundwater mound exists in the vicinity of monitoring wells MW-4 and MW-5; this mound diverts groundwater flow to the north and to the west. This diversion is possibly due to a bedrock "high," located beneath the facility.

#### 1.0 INTRODUCTION

## 1.1 <u>Project Description</u>

At the request of Eastman Kodak Company, Radian Corporation has conducted a second phase of subsurface environmental investigation at the Kodalux Processing Laboratory (Kodalux) in Fair Lawn, New Jersey. This report discusses the field activities and analytical results of Phase II groundwater investigation activities at the site.

In accordance with our September 13, 1991 letter of technical approach and scheduling, the scope of the Phase II Investigation included:

- Installation of five monitoring wells (MW-6 through MW-10);
- Advancement of six pilot boreholes (PB-1 through PB-6);
- Collection of groundwater samples from the pilot boreholes for Total Recoverable Petroleum Hydrocarbon (TRPH) analysis;
- Collection of groundwater samples from new and existing monitoring wells for volatile organics, base/neutral and acidextractable compounds, total cyanide, formaldehyde, TRPH, silver, and total and hexavalent chromium;
- Collection of one composite sample from drummed drill cuttings for waste characterization; and
- Collection of groundwater elevation data for use in interpretation of site hydrology.

Boring, monitoring well installation, and well development activities for this project were conducted by Summit Drilling Corp., Inc., New Jersey-licensed well drillers. These activities were supervised by a hydrogeologist from Radian Corporation.

## Historical Environmental Activities

1.2

In May and June 1990, CA Rich Consultants, Inc., conducted an Underground Storage Tank (UST) closure program at the Kodalux site. A report detailing the closure program was submitted to the New Jersey Department of Environmental Protection (NJDEP) on August 1, 1990. USTs removed during closure activities included two 20,000-gallon No. 6 heating oil tanks, one 3,000-gallon unleaded gasoline tank, and one 2,000-gallon unleaded gasoline tank. Heating oil was detected in soil underlying both of the No. 6 heating oil tanks. The NJDEP Hotline was notified of the No. 6 heating oil discharge (May 22, 1990) and the site was assigned Case Number 90 05 22 1638.

In response to the above observations and a June 5, 1990, letter from Mr. Joseph Miller of NJDEP to Mr. Dick Spiegel of Eastman Kodak Company, CA Rich Consultants, Inc., installed one monitoring well (MW-1, see Figure 1) adjacent to the former No. 6 heating oil tank locations, and excavated approximately 15 cubic yards of soil from below the former gasoline pump area. A Discharge Investigation and Corrective Action Report (DICAR) dated October 3, 1990, discusses the above activities, and addresses site characterization, soil remediation, and groundwater monitoring.

In September 1990, Radian Corporation conducted a subsurface vapor investigation in specific chemical use and processing areas at the facility. The objective of this investigation was to quantify subsurface vapor concentrations of chemical constituents, and provide information to be used for locating potential monitoring wells.

In March and April 1991, Radian conducted a Phase I Groundwater Investigation at the facility, which consisted of the installation of four monitoring wells (MW-2 through MW-5) and sampling of five monitoring wells (MW-1 through MW-5). The activities and findings of this investigation were presented to Kodak in a report entitled "Final Groundwater Inverstigation Report, Kodalux Processing Laboratory, Fair Lawn, New Jersey," dated September 9, 1991. It was determined during this

#### investigation that:

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- In MW-2 a saturated parting was noted in the bedrock from 29.0 to 29.5 feet below grade. Perched water and hydrocarbons believed to be No. 6 fuel oil were encountered in this zone. The thickness of the fuel oil floating in MW-2 was estimated between 0.5 and 0.75 inches. Below this zone, an underlying confined aquifer was encountered at MW-2 at 34.0 to 35.0 feet below grade.
- Review of data from MW-1 indicated that the perched zone and confined aquifer encountered in MW-2 also exists at this location.
- The uppermost aquifer in the area of MW-3, and MW-4, and MW-5 appears to be under unconfined conditions.
- Approximately 0.25 inches of fuel oil was observed in the purge water from MW-2 at the time of sampling. In addition, fuel oil droplets were observed in the purge water from MW-1.
- Of the five wells, MW-2 showed the highest concentrations of petroleum hydrocarbons. Hydrocarbons were also detected in MW-1.
- More extractable organics were detected in MW-2 than in the other four wells, although generally at levels just above the CRQL.
- 1,1,1-Trichloroethane was present in every well, with the highest concentration present in MW-2. 1,1-Dichloroethane was detected in four wells (MW-1, MW-2, MW-3, and MW-4), with the highest concentration occurring in MW-3. MW-3 also contained the highest level of 1,1-dichloroethene, which was found in three wells (MW-2, MW-3, and MW-4). Vinyl chloride also was detected in MW-3. Other volatiles detected in MW-3, MW-1, and/or MW-5, included benzene, toluene, cis-1,2-dichloroethane, and chloroform.
- Formaldehyde was detected in MW-3, MW-4 and MW-5 at levels from 140  $\mu$ g/L to 2500  $\mu$ g/L. In addition, cyanide was detected in MW-3, and total chromium in MW-4 and MW-5.
- No organic compounds were detected in drummed drilling cuttings.

# 2.0 MONITORING WELL LOCATIONS

Five monitoring wells (MW-6 through MW-10) were installed as part of the Phase II investigation at Kodalux to further investigate groundwater conditions at the facility. The well locations were slightly modified from the locations stated in the original work plan, due to the presence of underground utilities and overhead interferences. Final monitoring well locations are described below, and are shown on a site map, presented in Figure 1.

MW-6	Located near the southwestern corner of the property.
MW-7	Located approximately 110 feet west of MW-2, just north of the westernmost loading dock.
MW-8	Located along the western property boundary, approximately 370 feet north of NJ Highway 208.
MW-9	Located in the north parking lot, approximately 220 feet north of MW-2.
MW-10	Located approximately 30 feet south of the southeastern corner of the building.

Coordinates and elevations of the resultant wells were measured by Donald H. Stires Associates, New Jersey-licensed surveyors. Data were tied to New Jersey Geodetic Survey Control and are included on the site map (Figure 1).

# 3.0 MONITORING WELL AND PILOT BOREHOLE INSTALLATION

# 3.1 <u>Methodology - Monitoring Well Drilling</u>

Five monitoring wells were installed during this investigation. All borings were completed as bedrock monitoring wells in accordance with NJDEP specifications (Appendix A), and were designed to monitor the uppermost aquifer.

Split-spoon samples were collected at 5-foot intervals during well construction. Borings, 10 inches in diameter, were advanced to each split spoon sample interval using air rotary methods. Spoons were driven and samples collected until refusal at the bedrock surface. The soils were classified and inspected for signs of visible contamination.

After bedrock was encountered, the 10-inch diameter borings were advanced 5 feet into competent bedrock using air rotary methods, after which 6-inch diameter steel casings were set. A cement-bentonite grout was emplaced into the annular space from the bottom of the casing to the ground surface. The grout was pumped under pressure through a tremie pipe to ensure positive placement of the grout. Grout was allowed to set for a minimum of 12 hours. After allowing the grout to set, 6-inch diameter borings were then advanced below the steel casings to approximately 10 feet below the water table but not greater than 25 feet below the bottom of the casing. Rock cuttings were visually inspected. Bedrock stratigraphy was classified based on visual inspection of the cuttings, drilling time, and drilling method responses to lithologic variability. Logs of borings are presented in Appendix B.

To protect the wells against damage from vandalism or vehicular traffic, flush-mount manholes were slipped over the casing and anchored 1 foot below grade with grout. The steel casings were fitted with sealed locking caps and locks. A 2-foot by 2-foot by 4-inch thick concrete pad was poured into a flush mount form fitted around the manhole cover.

Efforts were made to reduce the possibility of introducing or carrying-over contamination from one borehole to another via the well bore. Equipment was steam-cleaned prior to each borehole. Cleaning was performed at a temporary decontamination pad. The decontamination materials and pad were containerized in a 55-gallon drum upon project completion, and the drum was labeled to identify the date filled and the source (i.e., decon pad and sediment). Soil and rock cuttings from each well were placed in 55-gallon DOT drums upon generation, and the drums were labeled to identify the date filled and the source (i.e., MW-3 soil cuttings).

During drilling activities, an HNu, and Drager tubes for formaldehyde and vinyl chloride, were used periodically to monitor air quality in the breathing zone of the worker closest to the borehole. These results are reported in Section 3.3.

## 3.2 <u>Methodology - Pilot Borehole Drilling</u>

Six pilot boreholes were advanced during this investigation. The pilot boreholes were designed to investigate (and attempt to delineate) the No. 6 fuel oil that was encountered in a perched zone in monitoring wells MW-1 and MW-2. All pilot boreholes were abandoned after sampling with the exception of PB-1, which was completed as monitoring well MW-7.

Borings 6 inches in diameter were advanced using air rotary methods.

Undisturbed split-spoon samples were collected at 5-foot intervals in advance of the drill bit, until refusal at bedrock. The soils were classified by a Radian geologist and inspected for signs of visible contamination. Logs are presented in Appendix B.

The borings were advanced into bedrock until groundwater was encountered. Close attention was paid to the cuttings, drilling time, and drilling responses to determine whether any perched water or fuel oil was encountered. Bedrock stratigraphy was described based on visual inspection of the cuttings, drilling time, and drilling responses to lithologic variability.

The pilot boreholes were left open until a sufficient volume of groundwater had accumulated to fill 1-liter sample containers required for TRPH analyses. Upon sufficient accumulation, the groundwater samples were collected; these boreholes were not developed prior to sampling. Following sampling, the boreholes were abandoned by filling with a cement-bentonite grout. The grout was pumped under pressure through a tremie pipe to ensure positive placement.

To prevent cross-contamination of groundwater, all drilling equipment was steam-cleaned prior to drilling each pilot borehole. Soil and rock cuttings from each borehole were stored in labeled 55-gallon drums.

During drilling, Draeger tubes for formaldehyde and vinyl chloride were used periodically to monitor air quality in the breathing zone of the worker closest to the borehole. These results are presented in Section 3.3.

### 3.3 Results

HNu screening was conducted during the drilling of MW-6, MW-7, and MW-8, before the unit malfunctioned. HNu screening of the soils and breathing zone indicated no zones of detectable vapor concentrations. Drager tubes for formaldehyde and vinyl chloride (used to screen the breathing zone during all drilling activities) indicated no zones of detectable vapor concentrations. No visual signs of contamination were observed in any of the soils.

The unconsolidated overburden encountered consisted of predominantly fine-grained to medium-grained sand, containing variable concentrations of silt, clay, gravel, and rock fragments. As a general rule, the sands were medium-grained and silty; gravel was fine and consisted of sandstone, granite, and aphanitic rock. Rock fragments were predominantly sandstone from the underlying bedrock, with some granite. The majority of the overburden was glacially derived, with the upper materials possibly being fill. HNu screening values and soil classifications were recorded with depth, and are presented in the Drilling Logs, Appendix B.

Bedrock was encountered from approximately 8.5 feet (PB-5) to 20 feet (MW-7/PB-1) below grade. Bedrock encountered generally consisted of hard, red, medium-grained sandstone. All casings were set within this sandstone.

Bedrock encountered beneath the cased sections consisted predominantly of hard to very hard, red, medium-grained sandstone, with softer, water-bearing sandstone and shale zones noted periodically (in Appendix B).

None of the pilot boreholes intersected the perched zone containing fuel oil that had been encountered during the installation of MW-1 and MW-2. This conclusion is based on close observation of the drilling activities, and groundwater sampling activities that failed to show any indication of a free-phase hydrocarbon layer.

Total depths for completed monitoring wells varied from 36.25 feet (MW-7) to 39.52 feet (MW-9) below top of casing. Total boring depths ranged from approximately 36.7 to 39.9 feet below surface grade. Bedrock lithologies and observations were recorded with depth and are presented in the Drilling Logs, Appendix B. Monitoring well schematics are presented in Appendix C.

Thirty-two drums were generated during this phase of work; 22 contained soil and rock cuttings, 5 contained development water, 3 contained purge water, 1 contained the decon pad and sediment, and 1 contained sample tubing and bailers. A total of 58 drums have been generated during drilling and sampling activities to date.

Following completion, the wells were surveyed by Donald H. Stires Associates, a professional land surveyor licensed in the State of New Jersey. A copy of each "Monitoring Well Certification Form - B" is included in Appendix D.

#### 4.0 WELL DEVELOPMENT

## 4.1 <u>Methodology</u>

All newly installed monitoring wells were developed to remove any material (solid or liquid) introduced to the well during drilling and well installation and to promote groundwater flow into the well. Development was conducted on October 28 and 29, 1991. Initial static water levels were collected prior to development of each well. A submersible pump was used to develop MW-7. The remaining wells were developed with a bailer. Each well was pumped or bailed to dryness at least once. Following development, total well depth was measured in each well. Field records of well development are presented in Appendix E. Development water was containerized in labeled 55-gallon DOT drums. The labels identified date filled and the source (i.e., MW-3 development water). Five drums contained development water.

## 4.2 <u>Static Water Measurements</u>

Depths to static water from top of well casings for MW-6 through MW-10 were measured prior to development activities. These and subsequent measures are recorded on the well logs (Appendix B). Depths to static water from top of well casings for all monitoring wells were measured on November 14, 1991, prior to well purging and sampling activities. A second set of water level measures were collected on December 19, 1991. November water level elevations varied from 56.25 ft. MSL (MW-6) to 70.86 ft. MSL (MW-5). December water level elevations varied from 60.53 ft. MSL (MW-3) to 72.76 ft. MSL (MW-5). Water level elevations generally rose (MW-1 through MW-9) from November to December, with a maximum rise of 4.88 ft (MW-6) and an average rise of 1.7 ft. Water level elevation decreased 2.74 ft. in MW-10.

Water level elevations are presented in Table 1, and the configurations of the groundwater table for November and December are depicted in Figures 2 and 3, respectively.

### 4.3 Groundwater Flow

Based on this investigation and the Phase I investigation, groundwater appears to exist under both confined and unconfined conditions under the facility. Near MW-1 and MW-2, the aquifer is under slightly artisan conditions due to a locally confining sandstone bed overlying the saturated zone. The aquifer is unconfined at the remainder of the site.

Groundwater is entering the site predominantly from the east-southeast. A localized groundwater mound exists in the vicinity of monitoring wells MW-4 and MW-5, as indicated in the groundwater elevation maps for measurements taken November and December 1991 (Figures 2 and 3, respectively). This mound, which is possibly due to a bedrock "high" located beneath the facility, diverts groundwater to the north and to the west. Bedrock elevation contours are presented in Figure 4. It is not known what impact, if any, the basement floor drains in this vicinity may have on groundwater flow.

The groundwater surface roughly parallels the bedrock surface and is generally located approximately 15 feet below the bedrock surface. Cross-sections depicting the hydrogeology are presented in Figures 5 and 6.

## 5.0 SAMPLING PROCEDURES

#### 5.1 General

This section describes procedures used in the sampling of the groundwater monitoring wells (MW-1 through MW-10), pilot boreholes (PB-1 through PB-6), and drilling cuttings. Sampling and analysis were performed as described in the September 13, 1991 work plan. Monitoring well and pilot borehole locations are shown in Figure 1. Monitoring well groundwater samples were analyzed for volatile organics, base/neutral and acid-extractable compounds, total cyanide, formaldehyde, total recoverable petroleum hydrocarbons, silver, chromium, and total and hexavalent chromium. Pilot borehole groundwater samples were analyzed for total recoverable petroleum hydrocarbons. Drilling cuttings were analyzed for waste disposal characterization. Groundwater sampling procedures discussed in RCRA Ground-Water Monitoring Technical Enforcement Guidance Document, USEPA, September 1986, were followed. The following subsections discuss sampling procedures and analytical methods.

# 5.2 Sampling Equipment

Groundwater sampling was performed using dedicated, non-dedicated, and miscellaneous equipment and reagents. Dedicated equipment was used at only one well. Non-dedicated equipment was used in all wells, and a strict decontamination regimen was followed between wells. Miscellaneous equipment was used at each well but did not require decontamination as there was no direct contact with the samples. Each type of equipment necessary to complete the sampling is discussed below.

Dedicated Equipment: Each monitoring well and pilot borehole had a dedicated Teflon bailer and Teflon-coated stainless steel line to avoid potential cross-contamination of wells. Tubing associated with the purge pump was dedicated to each well.

Non-Dedicated Equipment: Non-dedicated equipment included a purge pump and an electronic water level indicator.

Miscellaneous Equipment and Reagents: Other equipment and reagents used during the sampling are listed below:

- Conductivity/temperature/pH meter, capable of measuring conductivity to 20,000 uS, temperature from -30.0 to 105.0°C, and pH from 0.01 to 14.00;
- 200-mL wide-mouth glass bottle;
- Rinse bottles for Alconox<sup>®</sup> and water;
- Sample labels;
- Clear tape (to protect sample labels);
- Ice for sample preservation;
- Chemicals for sample preservation;
- Distilled water;
- Teflon tape (for wrapping the sample labels);
- Calibration buffers for pH meter;
- Calibration solution for conductivity meter;
- Safety equipment (detailed in health and safety plan); and
- Sample containers.

# 5.3 Monitoring Well Sampling Procedures

The sampling procedures presented below represent the minimum requirements to ensure the collection of acceptable monitoring well groundwater samples. The procedures are listed in the order in which they were performed in the field.

Static water level measurement: An electronic water level indicator was used to determine the static water level in each well before purging and sampling were performed. Markings on the tape allowed for measurement to 0.01 foot. The tape was decontaminated before advancing to the next well.

Well Purging: Standing water from the well casing was removed before samples were collected. Purging was performed as follows: Teflon tubing was placed into each well with the open end just above the well bottom. For wells with medium recharge rates, a minimum of one well volume was removed with removal continuing until well drawdown approached dryness. Wells with low recovery rates were purged once to near dryness. Evacuation rates were kept below 5 gallons per minute, and the well was never pumped completely to dryness. In addition, the pump intake was never placed more than six feet below the static water level in the well.

A total of 3 drums of water were containerized during well purging. Purge tubing and sample bailers were containerized in one drum.

Temperature. pH, and conductivity: Before and after collection of samples, the temperature, pH, and conductivity probes were placed in a wide-mouthed glass bottle into which a representative sample of well water has been poured. The probes were allowed to equilibrate with the water sample before final readings were taken from the meters. The glass bottle was rinsed with distilled water and a portion of the groundwater sample before use at each well.

Sample Collection: A total of ten groundwater samples were collected. The samples were collected at MW-1, through MW-10. The water level within each well had recovered (within 2 feet of the pre-purge static water level) before samples were collected. A dedicated bailer was unwrapped, tied to a new draw line, and lowered slowly into the well, to minimize volatilization of organic compounds.

Once the bailer was filled, it was slowly withdrawn from the well. The sample was poured from the top of the bailer into each sample container as appropriate, and into a separate container for field measurements, as previously described.

Trip Blanks: For each analytical parameter, one sample container was filled with Type II reagent grade water in the laboratory, shipped to the site with the empty containers, handled like a sample, and returned to the laboratory for analysis.

Equipment Blanks: For each analytical parameter, one sample container was filled with Type II reagent grade water by running it through a decontaminated bailer prior to use. The container was then sealed, handled like a sample, and sent to the laboratory for analysis.

# 5.4 <u>Pilot Borehole Sampling Procedures</u>

The pilot boreholes were left open until a sufficient volume of groundwater had accumulated to fill a 1-liter sample container required for TRPH analyses. Samples, trip blanks, and equipment blanks were collected in the same manner as described above.

# 5.5 <u>Drilling Cutting Sampling Procedures</u>

Sample Collection: Drilling cuttings were collected from each 5-foot increment during monitoring well and borehole installation. Cuttings were collected in individual 4-ounce jars. Upon completion of drilling, the cuttings from these jars were transferred into a stainless steel bowl, composited into one sample, and transferred into the appropriate sample containers.

Trip Blanks: For each analytical parameter, one sample container was filled with Type II reagent grade water in the laboratory, shipped to the site with the empty containers, handled like a sample, and returned to the laboratory for analysis.

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#### 5.6 <u>Decontamination</u>

Dedicated equipment does not require the strict decontamination regimen that is applied to non-dedicated equipment. Dedicated bailers were disposed of at the conclusion of sampling.

All non-dedicated equipment was decontaminated immediately after sampling, and before moving on to the next sampling station, to prevent cross-contamination of well water samples. The decontamination regimen was performed as follows:

- Non-phosphate soap and water rinse; and
- Final distilled water rinse.

# 5.7 <u>Analytical Parameters</u>

This section discusses the analytical parameters and methods performed on the monitoring well groundwater samples, pilot borehole groundwater samples, and drilling cutting samples. Recra Environmental, Inc. (New Jersey Lab ID #73455) in Amherst, New York, performed the following analyses:

# Monitoring Well Groundwater Samples:

- Base neutral and acid extractable compounds, by EPA Method 625, plus the identification and quantification of the 15 highest nontargeted compounds and the total number of peaks;
- Volatile organics, by EPA Method 624, including o-, m-, and pxylenes, plus the identification and quantification of the 15 highest non-targeted compounds and the total number of peaks;

- Formaldehyde, by NIOSH Method 3500;
- Total petroleum hydrocarbons, by EPA Method 418.1;
- Total cyanide, by EPA Method 9010;
- Total silver, by atomic absorption, EPA Method 272.1;
- Total chromium, by EPA Method 218.2; and Total chromium, by EPA Method 218.2; and
- Hexavalent chromium, by EPA Method 7195.  $\sqrt{2} \partial^{(2)}$

One field duplicate, one trip blank, and one equipment blank were collected for analysis of each of the parameters listed above. Due to a laboratory oversight, the trip blank was not analyzed for hexavalent chromium.

Pilot Borehole Groundwater Samples:

• Total recoverable petroleum hydrocarbons (TRPH) by EPA Method 418.1.

One field duplicate, one trip blank, and one equipment blank were collected for analysis. Due to a laboratory oversight, the trip blank was not analyzed for TRPH.

## **Drilling Cuttings:**

- Target Compound List (TCL) volatile organics plus trichlorofluoromethane and 1,1,2-trichloro-1,2,2-trifluoroethane, by EPA Method 8240;
- TCL semi-volatile organics plus 1,2-dichlorobenzene, nitrobenzene, and pyridene, by EPA Method 8270;
- Isobutanol, by EPA Method 8015;
- TCLP metals;
- Ignitability;

- Corrosivity; and
- Reactivity.

One trip blank was collected for analysis of TCL volatile organics plus trichlorofluoromethane and 1,1,2-trichloro-1,2,2-trifluoroethane by EPA Method 8240; and isobutanol by EPA Method 8015.

## 6.0 ANALYTICAL RESULTS

The five pilot boreholes, and the pilot borehole and monitoring well drilling cuttings, were sampled October 24 through October 28, 1991. The ten monitoring wells were sampled November 15, 1991. The location of the pilot boreholes and monitoring wells is shown in Figure 1. Samples were sent to Recra Environmental, Inc. for analysis.

The field data collected with the samples are presented below. Also discussed below are the analytical results for these analyses, followed by a brief discussion of the blank and quality control results. Copies of the analytical results are found in Appendix F.

## 6.1 Field Data

Water table elevation data are provided in Table 1. Table 2 presents the field measurement data collected concurrently with the monitoring well groundwater samples. The field data includes the depth to water; purge start and stop times; total volume purged from the well; well water pH, temperature and conductivity; and a general assessment of the well recovery rate.

# 6.2 Monitoring Well Groundwater Analytical Results

Table 3 and Table 4 present the results of the organic and inorganic analyses, respectively. Table 3 presents results for only those Base-Neutral and Acid Extractable (BNAE) Organics and Volatile Organics which were detected in any of the monitoring wells. Table 4 presents results for all the inorganic analytes, whether they were detected in the monitoring wells or not. Both tables list the analytical methods used and note which laboratory performed the analysis. Results are also shown in Figure 7.

Any results detected above the detection limit were reported in the Recra Environmental Inc. laboratory report. Any results detected below the detection limit were reported in the laboratory report with a "J" qualifier, indicating that concentrations were estimated, but were greater than zero. In Tables 3 and 4, results reported by Recra less than the detection limit have been replaced with the symbol "J," to indicate that low levels of the analyte were detected but with less quantitative certainty. The reported values for these low-level results are contained in the individual Recra laboratory report in Appendix F.

Base/Neutral and Acid Extractables: As seen in Table 3, no analytes on the Method 625 Priority Pollutant list were detected above the CRQL. MW-2 contained two Method 625 analytes at levels less than the CRQL. These included naphthalene and phenanthrene. In addition, one other compound - 1,3-dichlorobenzene - was detected in MW-3 at a level below the CRQL. The presence of phenanthrene appears to be possibly due to the shipping and handling process, laboratory contamination, or imprecision in detection at low concentrations (Section 6.5.).

Up to nine Tentatively Identified Compounds (TICs) were also reported for each sample. The TICs are not included in the calibration of the instrument; results should be considered estimates only. Similarly, since no external calibration is performed for TICs, specific detection limits are not available; the concentrations are estimated based on EPA recommended procedures for TIC identification. Concentrations of 2-fluoro-4-nitrophenol, unsaturated hydrocarbon, dimethyl naphthaline, and an unknown were estimated in MW-2. 1,3-Dithiolane, dichlorobenzenamine, chlorodimethyl phenol isomer, alkly substituted hydrocarbon, and five unknown analyte concentrations were estimated in MW-3. One oxygenated compound concentration was estimated in each of the following: MW-6, MW-7, and MW-9.

The gas chromatography/mass spectrometry results for each well sample were examined for the presence of hydroquinone. Hydroquinone was not one of the compounds contained in the Method 625 target analyte list, and therefore was not in the external calibration standards; instead, concentrations would have been estimated against an internal standard. However, no hydroquinone was detected in any well sample above the estimated detection limit of  $12 \mu g/L$ .

Volatiles: 1,1,1-trichlorethane was detected in eight wells and estimated present in one well. Detected concentrations ranged from 5.5  $\mu$ g/L in MW-4 to 13000  $\mu$ g/L in MW-2. 1,1-Dichloroethane was detected in five wells and estimated present in one well. Detected concentrations ranged 8.6  $\mu$ g/L in MW-8 to 110  $\mu$ g/L in MW-3. 1,1-Dichloroethene was detected in four wells and estimated present in three wells. MW-1 contained the lowest detected concentration of 17  $\mu g/L$  and MW-7 contained the highest level at 460  $\mu$ g/L. Chloroform was detected in three wells at concentrations ranging from 6.0  $\mu$ g/L to 12  $\mu$ g/L and estimated present in three wells. MW-6 contained the highest level at 12  $\mu$ g/L. Trichlorethene was detected in three wells and estimated present in two wells. A maximum concentration of 13  $\mu$ g/L was detected in MW-9. Trans-1,2-Dichloroethene was detected at 9.0  $\mu$ g/L in MW-1 and estimated present in three other wells. Vinyl chloride was detected in MW-3 at 110  $\mu$ g/L and estimated present in three other wells. Chloroethane was detected at 15  $\mu$ g/L in MW-2 and estimated present in two other wells. Benzene was detected at 13  $\mu$ g/L in MW-3. Tetrachloroethane was estimated present in MW-2 and MW-7 and Bromodichloromethane, chlorodibromomethane, toluene, 1,1,2-Trichloroethane and o/pxylene were each estimated present in on well. Chlorobenzene was estimated present in the equipment blank.

The tentatively identified compounds (TICs) hexachlorobutadiene and 1,1,2-trimethyl-1,2,2-trifluoroethane were each estimated present in one well, MW-3 at 90  $\mu$ g/L, and MW-6 at 4.3  $\mu$ g/L, respectively.

Petroleum Hydrocarbons: Seven wells (MW-1, MW-2, MW-4, MW-6, MW-7, MW-8, and MW-9) contained detectable levels of total recoverable petroleum hydrocarbons (TRPH), as analyzed by EPA Method 418.1. The amount reported ranged from 610  $\mu$ g/L to 12,000  $\mu$ g/L. MW-2 contained the highest quantity of petroleum hydrocarbons, with 12,000  $\mu$ g/L. MW-1 contained the lowest detected quantity of petroleum hydrocarbons, with ND (Not Detected) in one sample and 610  $\mu$ g/L in the sample duplicate. Low levels of TRPH appeared to be possibly due to the shipping and handling process, laboratory contamination or imprecision in detection at low concentrations (see Section 6.5).

Formaldehyde: Formaldehyde was detected in six wells MW-1, MW-3, MW-4, MW-5, MW-6, and MW-10. MW-3 contained the highest quantity of formaldehyde, with 260  $\mu$ g/L.

Inorganics: MW-3, MW-6, MW-7 and MW-8 contained total cyanide at concentrations ranging from 0.017 mg/L to 0.24 mg/L. Total silver concentrations ranged from 0.01 mg/L to 0.013 mg/L in MW-4, MW-6, MW-7, and MW-10. MW-1 through MW-7 contained concentrations of total chromium ranging from 0.011 mg/L to 0.093 mg/L. Low levels of total chromium appeared to be possibly due to sampling, the shipping and handling process, laboratory contamination, or imprecision in detection at low concentrations (Section 6.5). Hexavalent chromium was detected in MW-2 and MW-7 at 0.016 mg/L and 0.028 mg/L, respectively.

### 6.3 Pilot Borehole Analytical Results

Table 5 presents the results of the total recoverable hydrocarbon (TRPH) analyses. TRPH was detected in PB-6 at 680  $\mu$ g/L (0.680 mg/L), and was not detected in samples collected from the other five pilot boreholes.

#### 6.4 <u>Drilling Cuttings Analytical Results</u>

Table 6 presents the results of the drilling cutting waste disposal characterization. No volatile organics, semivolatile organics, or isobutanol were detected in the cuttings. In addition, analyses indicated the cuttings do not exhibit any hazardous waste characteristics.

### 6.5 <u>Ouality Assurance/Ouality Control</u>

#### **Blanks**

One equipment blank and one trip blank were collected with the monitoring well samples. Similarly, one equipment blank and one trip blank were collected with the pilot bore and drill cutting samples.

Equipment blank results were intended to indicate if contamination was associated with the sampling, shipping, or handling phases of the project, or with the equipment itself. (Disposable bailers were used for the monitoring well sampling and pilot borehole sampling, so decontamination technique was not a source of possible equipment contamination. Soil boring equipment was steam-cleaned between sample locations, so equipment blank results for pilot borings do not include the effects of any possible soil boring equipment contamination.) Trip blank results indicate whether contamination has occurred due to the shipping and handling phase itself. Method blanks also were analyzed and reported for each analytical method, and indicate if contamination occurred during sample analysis or preparation.

As seen in Table 7, no compounds were detected in any of the method blanks associated with the monitoring well groundwater samples, indicating that laboratory processing did not contribute to sample analyte concentrations. Low concentrations of chlorobenzene and total chromium were detected in the equipment blank collected with the monitoring well samples. Low concentrations of phenanthrene

and TRPH were also detected in the trip blank. The concentrations of chlorobenzene and phenanthrene were less than the laboratory quantitation limits for these compounds; the concentrations of the total chromium and TRPH were just above their respective quantitation limits. It is possible that similar low levels of these compounds may be found in the monitoring well samples; however, no high levels of contamination due to shipping or sampling equipment are indicated by these results.

No contaminants were detected in the blanks collected with the pilot boring samples or the drilling cuttings sample.

#### Field Duplicates

One set of field duplicates was collected for the monitoring well samples (MW-1), and one for the pilot boring samples (PB-4). Table 8 presents the results for each duplicate set, along with the Relative Percent Differences (RPDs) for each data set.

The RPDs for the monitoring well duplicate samples indicated good analytical and sample-to-sample precision. All RPD values were less than 10%. In a few cases, the RPD value could not be calculated since one of the duplicate results was ND (Not Detected). This was true for the vinyl chloride, TRPH, and the total chromium analyses. In all these cases, the detected amounts were just above the laboratory quantitation limit; at low levels, this analytical variability may be expected. Furthermore, for TRPH and total chromium, the concentrations of the detected compounds were roughly equal to the concentrations of these same compounds found in the blank samples. These results are indicative of the imprecision in detection of the low level of contaminants seen both in the field duplicate and in the blank samples.

RDP values could not be calculated for the pilot borehole duplicate samples since both of the sample results for TRPH were ND (Not Detected).

### Surrogates

All surrogate recoveries for the semi-volatile analyses were within the specified limits. All but one of the surrogate recoveries for the volatiles analyses were within the specified limits.

Phase2.fnl/g

#### 7.0 CONCLUSIONS

Activities have been completed in response to the fuel oil discharge, in accordance with NJDEP procedures required to investigate and initiate corrective actions for a hazardous substance discharge from an underground storage tank system. Reporting Requirements and Immediate Cleanup Requirements were addressed and summarized in a Discharge Investigation and Corrective Action Report (DICAR), authored by CA Rich Consultants, Inc., dated October 3, 1990. Completion of this Phase II Groundwater Investigation and the Final Investigation Report of September 9, 1991, address Discharge Mitigation Requirements.

Soil containing fuel oil in the vicinity of the tanks was excavated by CA Rich Consultants. No visual signs of fuel oil were observed by Radian Corporation in any of the soil or rock cuttings during installation of MW-2 through MW-10. However, fuel oil was noted in water from a perched water zone at MW-2. Similar conditions were noted by CA Rich during installation of MW-1. Pilot boreholes, PB-1 through PB-6, were installed in order to further define the areal extent of fuel oil noted in this perched zone. No visual signs of fuel oil were observed in any of the drilling cuttings or groundwater samples collected from these boreholes. During resampling of MW-2, oil droplets were noted in the water.

Total Recoverable Petroleum Hydrocarbon (TRPH) was detected in PB-6 at 680  $\mu$ g/L (0.680 mg/L) and was not detected in samples collected from the other five pilot boreholes. TRPH concentrations detected in MW-1, MW-2, and MW-7, November 15, 1991 samples, were ND (Not Detected) and 610  $\mu$ g/L (Duplicate), 12,000  $\mu$ g/L, and 1,100  $\mu$ g/L, respectively. The low levels of TRPH detected in PB-6 and MW-1 appear to be possibly due to the shipping and handling process, laboratory contamination, or imprecision in detection at low concentrations. These levels were less than concentrations detected in MW-6, MW-8, and MW-9. MW-6, MW-8, and MW-9 results indicated that up to 5,200  $\mu$ g/L (MW-8) may represent regional groundwater quality.

Elevated concentrations of TRPH were confined to MW-2, where the fuel oil was noted in a perched zone overlying the uppermost bedrock aquifer. The uppermost aquifer in this area is under slightly confined conditions, reducing the potential for vertical migration of the fuel oil.

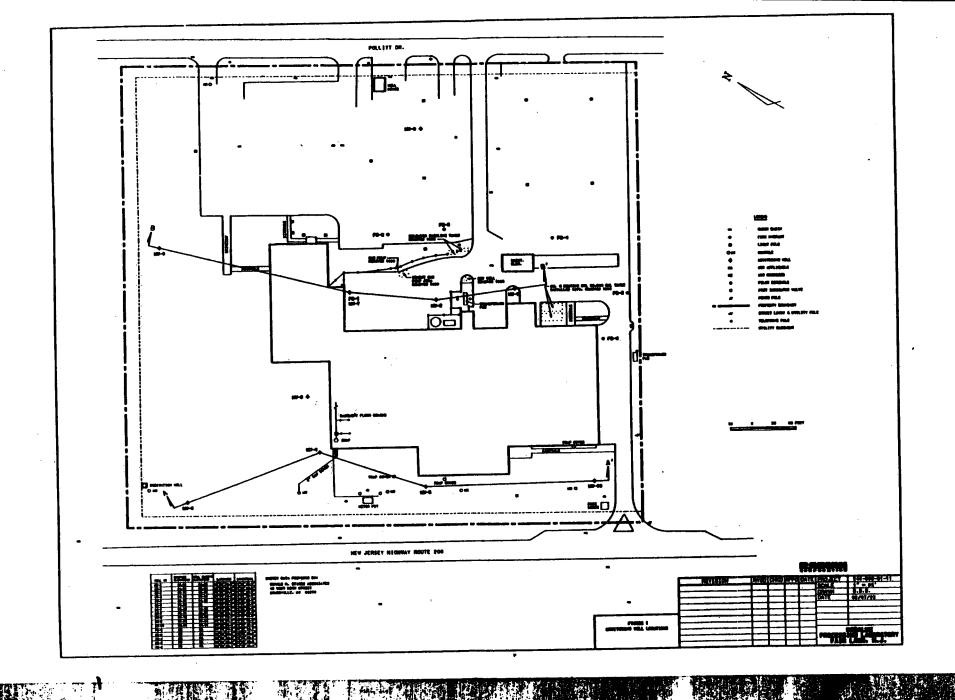
Concentrations of several detected constituents in monitoring well samples exceeded the Federal Drinking Water Standards Maximum Contaminant Level (MCL) and/or the New Jersey MCL (NJMCL) values. Exceedances included:

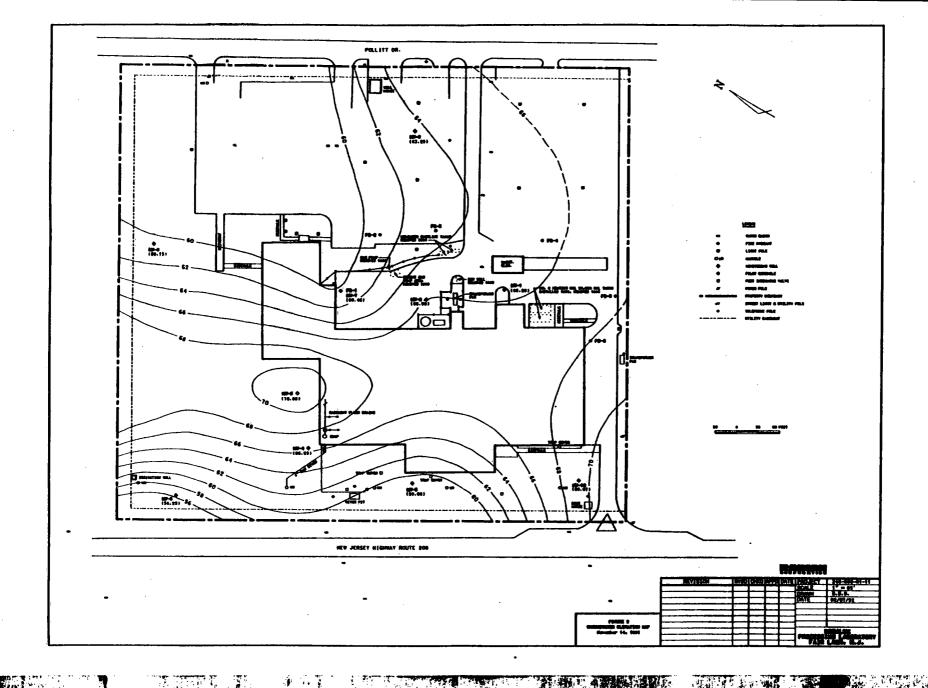
- Benzene in MW-3 at 13  $\mu$ g/L (MCL 5  $\mu$ g/L, 1 NJMCL  $\mu$ g/L);
- 1,1-Dichloroethene in MW-1 at 17  $\mu$ g/L, MW-3 at 100  $\mu$ g/L, MW-7 at 460  $\mu$ g/L, and MW-8 at 46  $\mu$ g/L (MCL 7  $\mu$ g/L, NJMCL 2  $\mu$ g/L);
- 1,1,1-Trichloroethane in MW-1 at 87  $\mu$ g/L, MW-2 at 13,000  $\mu$ g/L, MW-3 at 500  $\mu$ g/L, MW-7 at 2,700  $\mu$ g/L, and MW-8 at 370  $\mu$ g/L (MCL 200  $\mu$ g/L, NJMCL 26  $\mu$ g/L);
- Trichloroethene in MW-1 at 6.7  $\mu$ g/L, MW-2 at 7.2  $\mu$ g/L, and MW-9 at 13  $\mu$ g/L (MCL 5  $\mu$ g/L, NJMCL 1  $\mu$ g/L);
- Vinyl chloride in MW-3 at 100  $\mu$ g/L (MCL 2  $\mu$ g/L, NJMCL 2  $\mu$ g/L); and
- Total Chromium in MW-2 at 0.064 mg/L, MW-4 at 0.093 mg/L, MW-6 at 0.13 mg/L, and MW-7 at 0.065 mg/L (MCL 0.1 mg/L, NJMCL 0.05 mg/L).

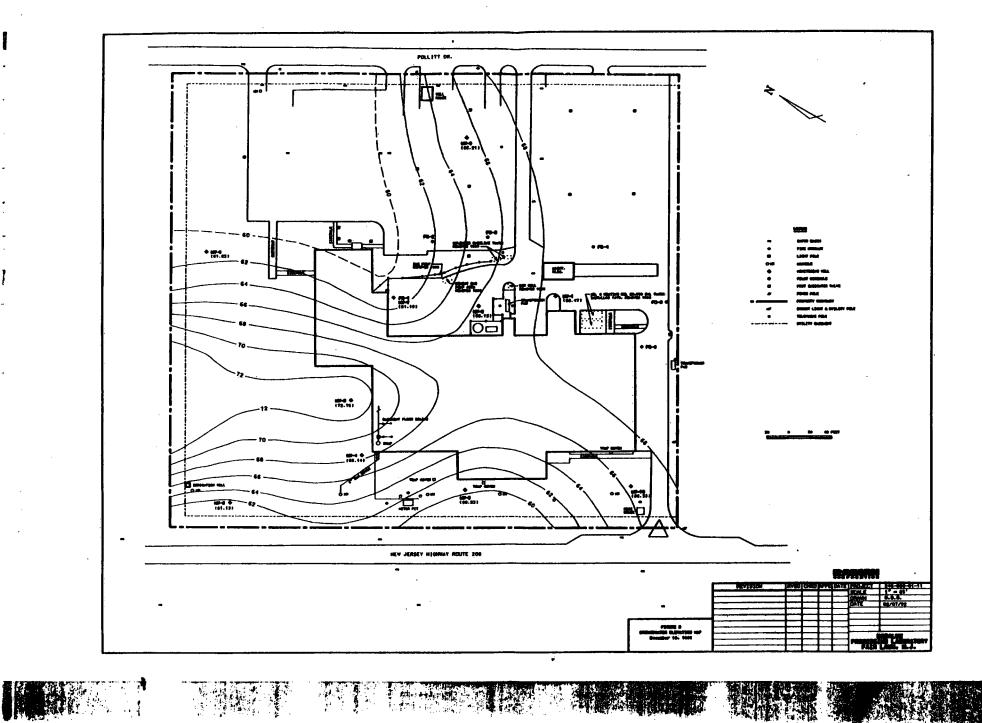
Detected trans-1,2-dichloroethane and total silver concentrations did not exceed MCL or MJMCL values. Chloroethane, chloroform, 1,1-dichloroethane, formaldehyde, petroleum hydrocarbons, total cyanide, and hexavalent chromium do not have MCL or NJMCL values; neither do any of the tentatively identified base-neutral and acid extractable organics or volatile organics.

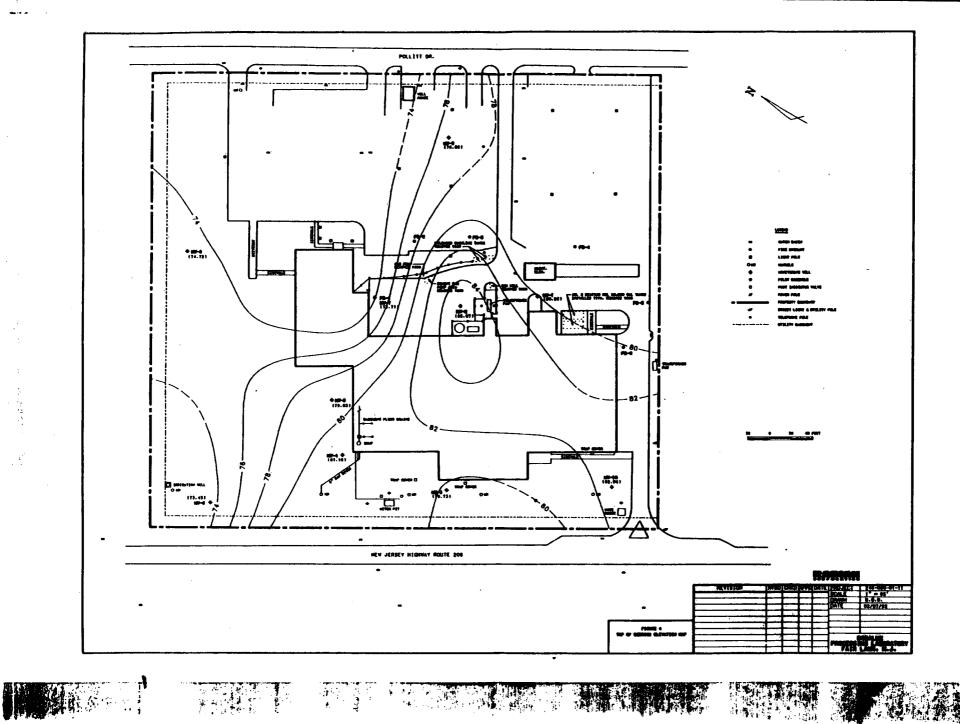
Cyanide concentrations detected in MW-7 (0.24 mg/L) exceeded the New Jersey groundwater quality criteria of 0.2 mg/L.

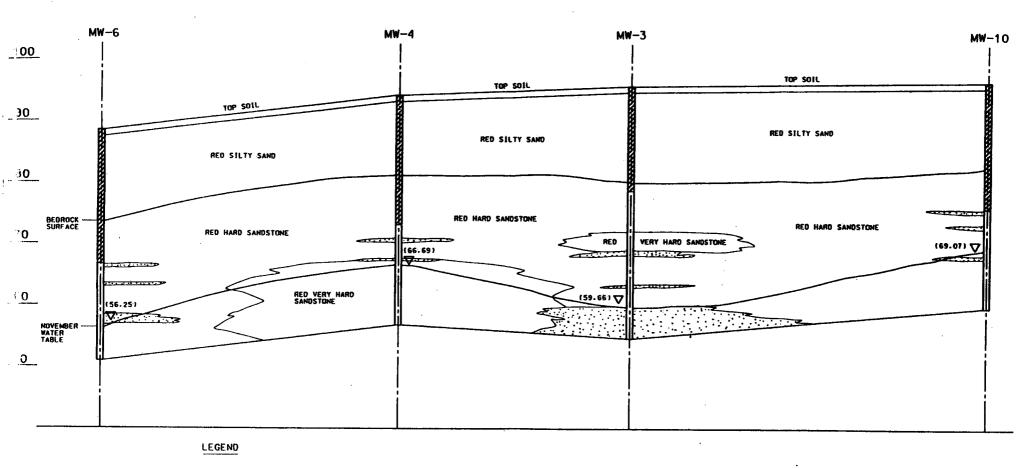
**FIGURES** 











OPEN WELL INTERVAL

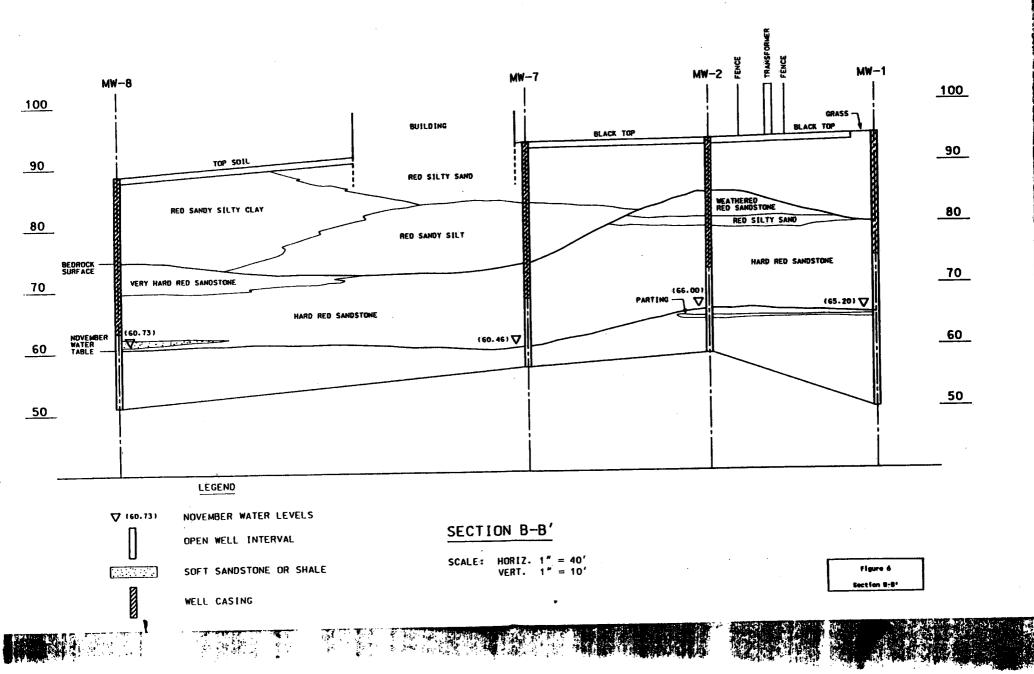
SOFT SANDSTONE OR SHALE

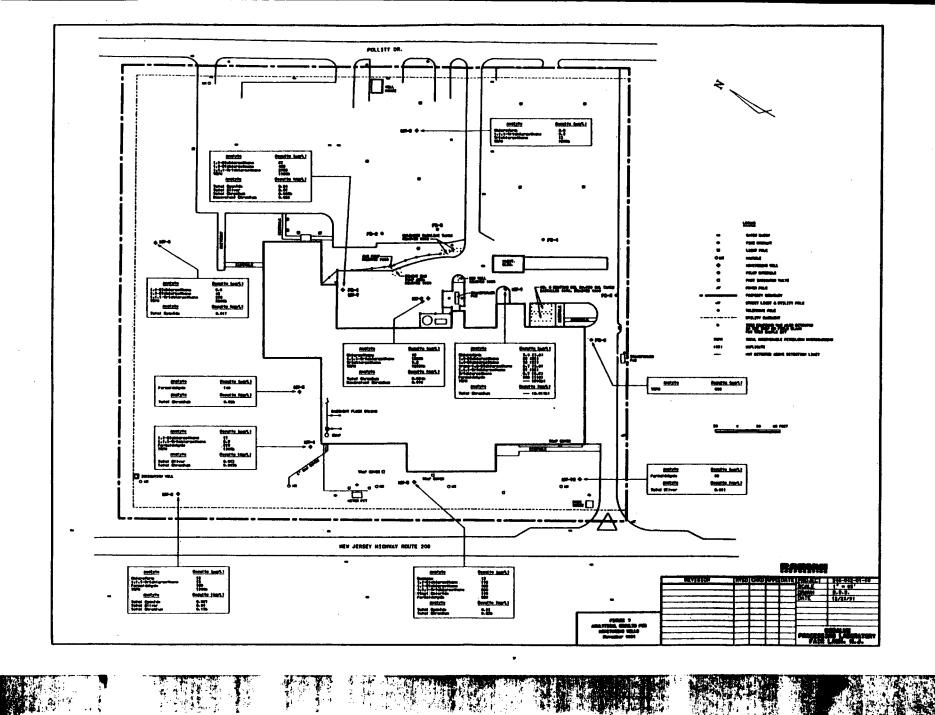
WELL CASING

SECTION A-A'

SCALE: HORIZ. 1" = 40' VERT. 1" = 10'

Figure 5
Section A:A'





**TABLES** 

Table 1
Groundwater Elevation Data

	Groundwater	Elevation (ft)
Well fD	11/14/91	12/19/91
MW-1	65.20	68.47
MW-2	66.00	66.15
MW-3	59.66	60.53
MW-4	66.69	68.14
MW-5	70.86	72.76
MW-6	56.25	61.13
MW-7	60.46	61.19
MW-8	60.73	61.65
MW-9	63.29	65.21
MW-10	69.07	66.33

Table 2
Field Data for Kodalux Monitoring Wells

Well ID		Page Start Time	Purpe Stop Time	Va Purp	H	Temp *C	Cond. (aS)	Recovery Rate
MW-1		1347	1353	35 gai	6.5	17, 17, 17	630, 620, 600	medium
MW-2	27.50 ft	1255	1323	25 gal	6.5	18, 18, 18, 18	830, 750, 670. 650	medium
MW-3	35.60 ft	0845	0910	6 gal (dry)	7, 6.5	16, 17	2390, 2400	slow
MW-4	27.90 A	1020	1025	14 gal (dry)	6.5	16, 16, 17	4060, 4040, 3930	slow
MW-5	23.80 ft	1045		18 gai (dry)	6.5, 6.0, 6.0	16, 17, 17	2020, 1970, 1920	slow
MW-6	31.90 ft	1140		7 gal (dry)	6.5	15, 15	600, 520	slow
MW-7	32.85 ft	1233		5 gal (dry)	7.5	17, 17	410, 340	slow
MW-8	27.65 ft	1120	1127	13 gal (dry)	7.0	13, 14, 14	620, 390, 370	slow
MW-9	27.95 ft	1203	1217	17 gal (dry)	6.5	16, 17, 17	530, 510, 520	slow
MW-10	27.10 R	0930	1000	16 gal (dry)	7	14	930, 850	slow

#### Field Notes:

MW-2 water appeared brownish-clear with oil droplets

MW-4 water appeared brownish-clear

MW-5 water appeared brownish-clear

MW-6 water appeared brownish-clear

MW-7 water appeared clear

MW-8 water appeared clear

MW-9 water appeared brownish-clear

MW-10 water appeared yellowish-clear

(dry) purged to near dryness

1.469

Table 3

Organic Compounds Detected in Kodalux Monitoring Wells - November 1991

			Detection		-					Re	اردو) والد	<b>)</b>					
Analyse	Metal	Labo		Marke	(OUP)	MW-2	MW-3	MW-4	MW5	MW4	MW-7	MW-8	MW-9	MW-10	Equipment Plant	Trip	Method
Base - Neutral and Acid Entractable Organics (BNAB)	BPA 625	Recra															
1,3-Dichlorobenzene	]		14				T -	J	Τ.	T .	Ι.	Τ.	Ι.	Τ.			
Naphthalene	]		14			J	-		-	<del>  .                                     </del>	<del>  .                                   </del>	<del>                                     </del>		<del>                                     </del>		<u> </u>	<u> </u>
Phenanthrene			14		- 1	Jb			<b> </b>	<del>  .</del>	<b> </b>	<b>†</b> .			-		
Tentative Identified BNAR Compounds <sup>d</sup>	EPA 625	Recra								<b>!</b>	<u> </u>	<u> </u>	<b>L</b>			•	<u> </u>
Unknown (Scan #722)			C	•		11						Τ.				_	
2-Fluoro-4-Nitrophenol (Scan #746)			c	•		7.3	•	•	·	·	•		•	-	•	-	•
Unsaturated hydrocarbon (Scan #938)		Ī	c	-	•	6.3	-	•	-	•		·	-	-	•	-	•
Dimethyl naphthalene isomer (Scan #1053)			c	•	·	6.4	•	•	•	-	•	-	•	٠		•	-
1,3-Dithiolane (Scan #525)		Ī	c			•	7.1	•	•	-	•	-	-	-	•	-	•
Dichlorobenzenamine isomer (Scan #955)		ľ	c	•	٠	•	26	-	•		•		•	-			•
Chlorodimethyl phenol isomer (Scan #1017)		Ī	c	-	-	•	10	•	•	-	•			•	•		•
Unknown (Scan #1153)	· }	<b> </b>	c		-		8.0		-								
Unknown (Scan #1312)	i	t	c	•	-		130	-		-			•				•
Unknown (Scan #1363)		r	-	-		$\exists$	6.0	-					_:-	-		$\vdots$	

Table 3 (Continued)

					_					Ra	rdia (ast	à					
Analysis	1411	L	(a)()		MW-1 1 (DUP)		MW-a	MW-	MW-S	MW-	MW-7	MW-s	MW-9	MW-10	Beginnent Blank	The	Method Black
Alkyl substituted hydrocarbon (Scan #1456)			c		•	-	12		-		-		•	-	-	-	
Unknown (Scan #1577)	]	1	c	1.	1.	<del>                                     </del>	21	<del>  .                                   </del>	+	<del>                                     </del>	╁╌	╁╌	<del></del>			<b> </b>	<b></b>
Unknown (Scan #1745)	]	Ī	c	1	T -		34	<b>.</b>	+		<del>                                     </del>	<del>                                     </del>	•	-	-	<u> </u>	<u> </u>
Oxygenated Compound (Scan #874)			C	-	•	•			·	9.9	-		•		•	÷	
Oxygenated Compound (Scan #872)	:		c	1		•	-	-		-	6.4	-	-	•	-	-	
Oxygenated Compound (Scan #860)	]		c	•	· .	•	·	·		•			13	•	•	-	-
Hydroquinone	EPA 8270	Recta	12	<u> </u>		-			<del>                                     </del>			<u> </u>	•				
Volatile Organics	BPA 624	Recra						<u> </u>							•	-	NA
Benzene			5.0				13				Γ.	. 1				<sub>1</sub>	
Bromodichloromethane			5.0	•						J					•		
Chlorobenzene			5.0	•		-	-			<u> </u>							-
Chlorodibromomethane			5.0		1	-				J			<del> </del>	-			
Chloroethane			10	J	7	15	7			<del></del> -							•
Chloroform		ľ	5.0	7.9	7.8	<u>, , , , , , , , , , , , , , , , , , , </u>	-										
1,1-Dichloroethane		ı	5.0	50	51	1(1)	110	17		12	J		6.0	<del></del> -			
1,1-Dichloroethene		t	5.0	16	17	1(1)	100				57 460 <sup>(3)</sup>	8.6					-
trans-1,2-Dichloroethene	-	t	5.0	8.7	9.0	-			-	•		46	J				
Tetrachioroethene		i t	5.0			<del>-;  </del>				•	- 1		1			-	<u> </u>
Toluene	į	Ì	5.0		- +		<del>-</del>	∹┤			1			<u> </u>	<u> </u>	<u></u>	

Phase2.fnl/g

Table 3

#### (Continued)

					-						ela (sel	)					
Analyss	Marie	1.0		WA-1	MW-1 (DUP)	MWa	MWs	MW4	MW-S	MW-6	MW-7	MW-s	MW-9	MW-10	Bq <del>ulpmen</del> Black	Trip	Metho: Blank
1,1,1-Trichloroethane			5.0	87	85	13000 <sup>(1)</sup>	500 <sup>(2)</sup>	5.5	-	13	2700(3)	370 <sup>(4)</sup>	6.2	J		Ī .	-
1,1,2-Tricloroethane	].		5.0	-	1.		1	<del> </del> -	<del>                                     </del>	<u> </u>	<u> </u>			-	<del></del>	├_	<del> </del>
Trichloroethene		l	5.0	6.7	6.6	7.2	J	<u> </u>			1	<del>  .                                     </del>	13		<del>                                     </del>	<del>                                     </del>	<u> </u>
Vinyt Chloride		l	10	1		1	110	J	<u> </u>	<u> </u>		-	-		<del>                                     </del>	<del>  -</del> -	<u> </u>
o/p-Xylene		1	5.0	•		J		<u> </u>	<del>                                     </del>					-		┝	-
Tentatively Identified Volatile Compounds <sup>d</sup>	EPA 624	Recra					<u> </u>	<u> </u>	<u> </u>	L					<u> </u>	<u> </u>	L
Hemchlorobutadiene	1		c	•			90(2)0						ı —			_	
1,1,2-Trimethyl-1,2,2- trifluoroethane			c	-	•	•		•		4.3		•	•	•	:	•	•
Formaldehyde	NIOSH 3500	Recra	84	100	110	•	260	210	140	180	•	•	•	90	•		•
	EPA 418.1	Recra	500	•	610 <sup>b</sup>	12000 <sup>b</sup>	•	1300 <sup>b</sup>	•	1200 <sup>b</sup>	1100 <sup>b</sup>	5200 <sup>b</sup>	1500 <sup>b</sup>	-	-	530	

Analysis performed by Recra Environmental, Inc.

Detection limits reported are Method Detection Limits (Formaldehyde and Petroleum Hydrocarbons) and Contract Required Quantitation Limits (Organics).

This compound was also detected in the trip or field blank for this sample set.

<sup>c</sup> Tentstively identified compound concentratins are estimated based on RPA recommended procedures for TIC identifications.

d Results for tentatively identified compounds are estimated.

- TIC was found in the dilution of this sample, but not in the undiluted sample.
- J Indicates an estimated value when the mass spectral data indicates the presence of a compound that meets the identification criteria but the result is less than the sample quantitation limit but greater than zero.

- Not detected above the detection limit.

- (1) Dilution factor 100 versus 1.0; detection limit for this compound will change accordingly.
- (2) Dilution factor 5 versus 1.0; detection limit for this compound will change accordingly.
- (3) Dilution factor 50 versus 1.0; detection limit for this compound will change accordingly.
- (4) Dilution factor 4.0 versus 1.0; detection limit for this compound will change accordingly.
- NA Due to a laboratory oversite sample Method Blank was not analyzed for Hydroquinone.

Phase2.fnl/g

Table 4 **Inorganics Results for Kodalux Monitoring Wells - November 1991** 

ن الرباء السنة الرباء المساء الرباء المساء السنة المساء الساء المساء الرباء

9010	Lana Regra		M.A.	(DUP) MW-1		MW-3	MWA	VOLUM		th (mel.				Equipment	Trie	Metho
9010	Recra		*************	<b>8786</b> ~30056600066.6	000000000000000000000000000000000000000							-	B 4000 4 4			
		0.01	•		-	0.11	-	- · · ·			0.017		musu.	Risak	Hank	
272.1	Recra	0.01	-				0.013			0.01			0.011	<u> </u>		-
218.1	Recra	0.01	•	0.011 <sup>b</sup>	0.064 <sup>b</sup>	0.03 <sup>b</sup>	0.093 <sup>b</sup>	0.02 <sup>b</sup>	0.13 <sup>b</sup>	0.065 <sup>b</sup>	-			0.016		
7195 1	Rocra	0.01	•	•	0.016	•		•	-	0.028	•	•			NA	-
2	18.1	18.1 Recra	218.1 Recra 0.01	18.1 Recra 0.01 -	Ris.1 Recra 0.01 - 0.011 <sup>b</sup>	R18.1 Recra 0.01 - 0.011 <sup>b</sup> 0.064 <sup>b</sup>	772.1 Recra 0.01	R72.1         Recra         0.01         -         -         -         -         0.013           R18.1         Recra         0.01         -         0.011b         0.064b         0.03b         0.093b	R72.1         Recra         0.01         -         -         -         -         0.013         -           R18.1         Recra         0.01         -         0.011b         0.064b         0.03b         0.093b         0.02b	R72.1         Recra         0.01         -         -         -         -         0.01         -         0.01           R18.1         Recra         0.01         -         0.011b         0.064b         0.03b         0.093b         0.02b         0.13b	772.1 Recra 0.01 0.013 - 0.01 0.01  188.1 Recra 0.01 - 0.011 <sup>b</sup> 0.064 <sup>b</sup> 0.03 <sup>b</sup> 0.093 <sup>b</sup> 0.02 <sup>b</sup> 0.13 <sup>b</sup> 0.065 <sup>b</sup>	772.1 Recra 0.01 0.013 - 0.01 0.01 - 188.1 Recra 0.01 - 0.011 <sup>b</sup> 0.064 <sup>b</sup> 0.03 <sup>b</sup> 0.093 <sup>b</sup> 0.02 <sup>b</sup> 0.13 <sup>b</sup> 0.065 <sup>b</sup> -	772.1 Recra 0.01 0.013 - 0.01 0.01 188.1 Recra 0.01 - 0.011 <sup>b</sup> 0.064 <sup>b</sup> 0.03 <sup>b</sup> 0.093 <sup>b</sup> 0.02 <sup>b</sup> 0.13 <sup>b</sup> 0.065 <sup>b</sup> 188.1 Recra 0.01 - 0.011 <sup>b</sup> 0.064 <sup>b</sup> 0.03 <sup>b</sup> 0.093 <sup>b</sup> 0.02 <sup>b</sup> 0.13 <sup>b</sup> 0.065 <sup>b</sup> 188.1 Recra 0.01 - 0.011 <sup>b</sup> 0.064 <sup>b</sup> 0.03 <sup>b</sup> 0.093 <sup>b</sup> 0.093 <sup>b</sup> 0.02 <sup>b</sup> 0.13 <sup>b</sup> 0.065 <sup>b</sup> 188.1 Recra 0.01 - 0.011 <sup>b</sup> 0.064 <sup>b</sup> 0.03 <sup>b</sup> 0.093 <sup>b</sup> 0.093 <sup>b</sup> 0.02 <sup>b</sup> 0.13 <sup>b</sup> 0.065 <sup>b</sup> 188.1 Recra 0.01 - 0.011 <sup>b</sup> 0.065 <sup>b</sup> 188.1 Recra 0.01 - 0.011 <sup>b</sup> 0.065 <sup>b</sup> 188.1 Recra 0.01 - 0.011 <sup>b</sup> 0.065 <sup>b</sup> 188.1 Recra 0.01 - 0.011 <sup>b</sup> 0.065 <sup>b</sup> 188.1 Recra 0.01 - 0.011 <sup>b</sup> 0.065 <sup>b</sup> 188.1 Recra 0.01 - 0.011 <sup>b</sup> 0.065 <sup>b</sup> 188.1 Recra 0.01 - 0.011 <sup>b</sup> 0.065 <sup>b</sup> 188.1 Recra 0.01 - 0.011 <sup>b</sup> 0.065 <sup>b</sup> 188.1 Recra 0.01 - 0.011 <sup>b</sup> 0.065 <sup>b</sup> 188.1 Recra 0.01 - 0.011 <sup>b</sup> 0.065 <sup>b</sup> 188.1 Recra 0.01 - 0.011 <sup>b</sup> 0.065 <sup>b</sup> 188.1 Recra 0.01 - 0.011 <sup>b</sup> 0.065 <sup>b</sup> 188.1 Recra 0.01 - 0.011 <sup>b</sup> 0.065 <sup>b</sup> 188.1 Recra 0.01 - 0.011 <sup>b</sup> 0.065 <sup>b</sup> 188.1 Recra 0.01 - 0.011 <sup>b</sup> 0.065 <sup>b</sup> 188.1 Recra 0.01 - 0.011 <sup>b</sup> 0.065 <sup>b</sup> 188.1 Recra 0.01 - 0.011 <sup>b</sup> 0.065 <sup>b</sup> 188.1 Recra 0.01 - 0.011 <sup>b</sup> 0.065 <sup>b</sup> 188.1 Recra 0.01 - 0.011 <sup>b</sup> 0.01 - 0.011 <sup>b</sup> 0.01 - 0.011 <sup>b</sup> 0.01 - 0.011 <sup>b</sup> 0.010 <sup>b</sup> 0.01 - 0.011 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.010 <sup>b</sup> 0.	772.1 Recra 0.01 0.013 - 0.01 0.01 0.011  188.1 Recra 0.01 - 0.011 <sup>b</sup> 0.064 <sup>b</sup> 0.03 <sup>b</sup> 0.093 <sup>b</sup> 0.02 <sup>b</sup> 0.13 <sup>b</sup> 0.065 <sup>b</sup>	772.1 Recra 0.01 0.013 - 0.01 0.01 0.011 - 188.1 Recra 0.01 - 0.011 <sup>b</sup> 0.064 <sup>b</sup> 0.03 <sup>b</sup> 0.093 <sup>b</sup> 0.02 <sup>b</sup> 0.13 <sup>b</sup> 0.065 <sup>b</sup> 0.016	

Analysis performed by Recra Bavironmental, Inc.

Detection limits reported are Instrument Detection Limits (Metals) and Contract Required Quantitation Limits (Cyanide).

This component was also detected in the trip or equipment blank for this sample set.

- Not detected above the detection limit.

NA Due to laboratory oversite, sample Trip Blank was not analyzed for Hexavalent Chromium.

Table 5

## Total Recoverable Petroleum Hydrocarbon Detected in Kodalux Pilot Boreholes - October 1991

Total Recoverable Petroleum Hydrocarbons	EPA 418.1	Recra	0.5						_	0.68	NA	
Anages	)	Lab	Descripe Limit*	P9-1	79-3	ra-a	PB-4	PB-4 (DUP)			Trip Rissk	Figuipment Blank

Analysis performed by Recra Environmental, Inc.

Detection limits reported are Method Detection Limits.

Not detected above the detection limit.

NA Due to laboratory oversite sample Trip Blank was not analyzed for Total Recoverable Hydrocarbons.

Table 6

Kodalux Drilling Cuttings Waste Characterization Analytical Results - October 1991

				Result	
Andre	Method	L#4	Detection Limit <sup>4</sup>	Drilling Cettings	Trip Blank or TCLP Blank
TCL volatile organics (ag/kg) plus Trichlorofiuoromethane and 1,1,2-Trichloro-1,2,2- trifluoroethane	EPA 8240	Recra			
1,1,1-Tricholoroethane			5	J	•
TCL semivolatile organics (µg/kg) plus 1,2-dichlorobeazene, nitrobeazene, and pyridine	BPA 8270	Recra	NA	-	NA NA
Isobutanol (µg/kg)	BPA 8015	Recra	490 <sup>b</sup>	-	-
TCLP Metals (mg/L)		Recra	<u></u>		
Total Arsenic	EPA 7060		0.005		•
Total Barium	BPA 6010		0.03	1.0	-
Total Cadmium	BPA 6010		0.005	-	
Total Chromium	BPA 7190		0.01	0.015 <sup>b</sup>	0.017
Total Lead	BPA 7420		0.06		
Total Mercury	BPA 7470		9.0004		-
Total Selenium	BPA 7740		0.005	•	
Total Silver	BPA 7760		0.01	•	•
gnitability (Flash Point)	EPA 1010	Recra	NA	>200 F	NA
Corrosivity		Recra	NA	7.9 STD uni	NA
Reactivity	·	Recra		- I	
Total Available Cyanide (Reactivity)	SW-846 7.3.2		NA	•	NA
Total Available Sulfide (Reactivity)	SW-846 7.3.4.1	ļ	NA NA		NA

Analysis performed by Recra Environmental, Inc.

- Detection limits reported are Contract Required Quantitation Limits (Organics) and Instrument Detection Limits (Metals).
- Detection Limit for isobutanol in the trip blank is 1000 µg/L.
- Not detected above the detection limit.
- NA Detection Limit was not applicable or sample Trip Blank was not analyzed for this parameter.
- J Indicates an estimated value when the mass spectral data indicates the presence of a compound that meets the identification criteria and the result is less than the sample quantitation limit but greater than zero.

Table 7 Blank Sample Results'

Monitoring Well Groundwater Samples Equipment Blank	2.9 µg/L Chlorobenzene (J)
	0.016 μg/L Total Chromium
Monitoring Well Groundwater Samples Trip Blank	0.93 μg/L Phenanthrene (J)
	0.53 mg/L TRPH
Monitoring Well Groundwater Samples Method Blanks	No compounds detected
Pilot Borehole Groundwater Samples Blank Equipment	No compounds detected
Drilling Cuttings Sample Trip Blank	No compounds detected

Analyses performed by Recra Environmental, Inc.

a Only analytes detected above detection limits are reported here.

J Indicates an estimated value when the mass spectral data indicates the presence of a compound that meets the identification criteria but the result is less than the sample quantitation limit but greater than zero.

Table 8
Field Duplicate Results (μg/L)

Analyte	FAX-1	MW-1 Day	RFD (%)	73-4	PB4 Dup	RED
Chloroethane	7.5 (J)	7.3 (J)	3	•		
Chloroform	7.9	7.8	1		<u> </u>	<u> </u>
1,1-Dichloroethane	50	51	2		<u> </u>	-
1,1-Dichloroethene	16	17	6		<del>                                     </del>	•
trans-1,2-Dichloroethane	8.7	9.0	3		•	•
1,1,1-Trichloroethane	87	85	2		•	•
Trichloroethene	6.7	6.6	2		•	•
Vinyl chloride	0.95 (Л)	ND	NC	•	•	-
Formaldehyde	100	110	10		•	•
TRPH	ND		NC	·	•	•
Total Chromium	ND		NC	ND	ND	NC

Analysis performed by Recra Environmental, Inc.

- J Estimated value, less than the quantitation limit.
- This component was detected in the equipment blank for this sample set.
- RPD Relative percent difference determined as the difference between two values, divided by their average, and expressed in
- NC Not calculated, one or both of the values was ND.
- MW Monitoring Well
- PB Pilot Boring.
- ND Not detected above the detection limit.
- Not analyzed.

APPENDIX A

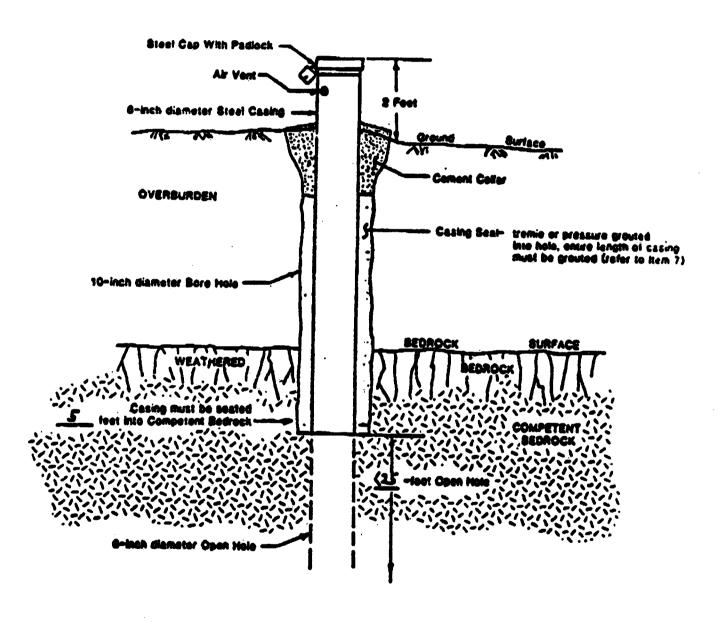
NJDEP BEDROCK MONITORING WELL SPECIFICATIONS

# MUNITUR WELL SPECIFICATIONS FOR BEDROCK FCRMATIONS

SITE NAME: KOBALUX PLOCESSING LAB

LOCATION: N.J. ROUTE 108, FAIR LAWN AFREN COUNTY

DATE: \_12/6/90



NOT TO SCALE

NJGS Revised 9-87

## BEDROCK MONITORING WELL REQUIREMENTS Revised 9/87

- 1. Notification to the NJDEP is required two weeks prior to drilling.
- 2. State well permits are required for each monitoring well constructed by the driller. The well permit tag must be permanently affixed to each monitoring well.
- 3. Copies of the site specific well specifications must be maintained at the drilling site by the driller.
- 4. The monitoring well must be installed by a New Jersey licensed well driller.
- 5. Monitoring well design must conform with NJAC 7:9-7, 8, and 9.
- 6. Drill an oversize borehole a minimum of 4 inches greater than the casing diameter through the overburden and bedrock so that the casing can be sealed into competent rock as indicated in the diagram,
- 7. Acceptable grouting materials are:

Meat Cement - 6 gallons of water per 94 pound bag of cement.

Granular Bentonite - I galion of water per 1.5 pounds of bentonite.

Cement-Bentonite - & gallons of water to 5 pounds of beatonite dry mixed per 94 pound bag of cement.

Cement-Bentonite - 10 gallons of water per 8 pounds of bentonite water-mixed with a 94 pound bag of cement.

Non-expandable sement - 7.5 gallons of water per 1/2 teaspoon of aluminum hydroxide mixed with 4 pounds of bentonite and 94 pounds of cement.

Non-expandable cement - 7 gallons of water per 1/2 teaspoon of aluminum hydroxide mixed with 94 pounds of cement (Type 1 or Type 11).

- 8. Potable water must be used for mixing grouting materials and drilling fluids.
- 9. Only threaded or welded joints are acceptable as couplings.
- 10. The driller must maintain an accurate written log of all materials encountered, record construction details for each well, and record the depth of water bearing zones. This information must be submitted to the Bureau of Water Allocation as required by N.J.S.A. 58:4A.
- 11. Flush mount monitoring wells are acceptable provided they have manholes, looking saps, and sonis to prevent leakage of surface water-down the well.

- 12. Top of each well casing (excluding cap) must be surveyed to the nearest marked on each well.
- 13. Wells must be developed to a turbidity-free discharge.
- 14. Modifications to designs are allowed only with NJDEP approval.

Le Charles (il epecyed):
Rock Core Samples ( ) Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit Spirit S
Split Spoon Samples (X ) EVERY TWO FEET AT WELLS MW-1, MW-5 AND MW-7
Borehole Geophysical Logs ( )
Dedicated Bailer (Sampler) in Well ( )
Other ( )

Notice is Hereby Given of the Following:

Additional Pagnissmans as

Review by the Department of well locations and depths is limited solely to review for compliance with the law and Department rules.

The Department does not review well locations or depths to ascertain the presence of, nor the potential for, damage to any pipeline, cable, or other structures.

The permittee (applicant) is solely responsible for the safety and adequacy of the design and construction of monitoring well(s) required by the Department.

The permittee (applicant) is solely responsible for any harm or damage to person or property which results from the construction or maintenance of any well; this provision is not intended to relieve third parties of any liabilities or responsibilities which are legally theirs.

APPENDIX B

**DRILLING LOGS** 

			DF	RILLING L	OG					HOLE NO. MW-6
1. COMPA						CONTRACTOR illing Co., Inc.				SHEET 1
3. Fair	Lawn, NJ			-	4. 40	GATION Bridgewater,	NJ		<del></del>	OF 1 SHEETS
S. NAME (	OF DRALE	R			C. MA	MFACTURER'S (		TION OF DELL		
7. SIZES AO S	MO TYP	ES OF DRILLING	Mobile 80 - Air Rota	ry Drill	8.110	LE LOCATION	NJ G	EODETIC SURV	VEY CONTROL	<del>-</del>
			10" OD hammer bit 2" OD 24" split spac	on sampler	9. SU	MACE ELEVATION		LONG. 74° 07	SURVEY CONTE	) Oi
			6" OD hammer bit		1	88.45		- GEODETIC .	SURVET CONTR	
					W. DA	10/21/91		1	10/22/91	10
-	1.100 Ti	1COE25			15. DE	PTH CROUDWA Water at 30'	TER D	COUNTERED		
		INTO ROCK				PTH TO WATER			TER DIBLING CO	
	2.5'	F HOLE		· · · · · · · · · · · · · · · · · · ·		Static water			top of casing	(10/29/91)
	7.5'		DESTURBED		<u></u> _	Water elev: 5	6.25'	(11/14/91 samp	oling): 61.13' (12/	(19/91)
N	lone		NA	UPCISTURED NA	'	10. TOTAL HEAGE	er of Vone	CORE BOXES	· · · · · · · · · · · · · · · · · · ·	
	LES FOR (	HENCAL MALY		WETALS	OTH	ER (SPECETY)	OTH	ER (SPECETY)	OTHER CENTED	PY) 21 TOTAL CORE
	STICH OF	HOLE	RACIFILID	NA MONTOFONO WELL		NA		NA .	NA	NA X
				~	0.74	DR (SPECIFY)	ĭ	SULTIME OF M	moody	,
ELEV.	אורישם		DESCRIPTION OF M	ATERNALS	•	SOL SCREEN	<u> </u>	BLOW		<b>TOURG</b>
38.45 Top		Top soil	prained sand with silt, w	ith				<b></b>	10" Ha	mmer bit
	s	some hard	i, red, sandstone fragm	ents				Air Rotary		
81.45						HN4 - ND		29, 23, 25,	28 Dense	
	10 —	Red, fine-q	prained sand with silt, I red, fine-grained sand	latone)				Air Rotary		-
		1		_		HNu - ND		30, 50/3"	Refued	gt 10'- 9"
73.45	15 —							Air Rotary		
edrock		with thin in	aandstone, fine to medi hterbeds of softer rock	um-grained, (red shale?)				Air Rotary		
	20	at 22', 25',	, and from 30' to 32'						At 201-	6" steel casing
		₫				: :			and gro	out in place. 4 hrs. re-enter
	25 —	3							with 6"	hammer bit
1		3				·		:		
	30 —	1								rt 30' (ne
İ		1		•					crear in	dication)
50.95	35	1								
ottom	40	Bottom	of hole at 37.51		<del></del>					
1	~	}							i	
	-	7								
	-									
	-							÷		

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DRILLIN						IG L	OG					HOLE	NO. MW-7/PB-1	]		
- 1	L COLPANY MAG					2. DRILLING SUBCONTRACTOR Summit Drilling Co., Inc.						SEET 1				
۱,		łux						Sum						<b>OF</b> 1	SEETS	
1	3. Fair I	Lawn, t	4J						4. LOC	Bridgewater,					<del></del>	]
1	Sean	OF DRILL								<b>UFACTURER'S D</b> Mobile 80	CHOK	NON OF DRELL				1
[		APLNO		OF DRELLING	Mobile 80 - A	r Rotary	Drill						YEY CONTROL	·		7
					10" OD hamme					LAT. 40°56'3						1
				-	2" OD 24" spi		sampler	<del>_</del>		<b>FACE ELEVATIO</b> 93.71	M N	GEODETIC :	SURVEY CONT	ROL		7
1		,		-	6" OD hammer	Dit		<del></del>		E STARTED		т.	IL DATE CONFLE			4
_				t						10/22/91			10/24/91	i ed		
	12. OVER	0.0'	THICK	E33		<del></del>			15. DE	TH GROUNDWA	TER DI	COUNTERED				1
-	13. DEPTH		D NT	O ROCK	<del> </del>				16, 067	TH TO WATER	#D E	AND DE A	TER DRILLING C	040 67		┨
1	10	6.7'											top of casing			1
-[	14. TOTAL	6.7'	<b>OF</b> 1	OLE	· ·		*			<b>CR WATER LEV</b> Water Elev: 61			PECFY) mpling); 61.19* (	12/19/9	21)	1
-	18. GEOTE	CHOCA Ionie	SAM	PLES	DISTUR		u	NOISTURBED NA		a TOTAL MAG						1
- -	20. SAG	£8 FO	96	MCAL MALYS	8 YOC		MET	TALS	OTHE	R (SPECETY)	OTH	R (SPECIFY)	OTHER CAPE	<del></del>	21 TOTAL CORE	4
_	· N	ione			NA		N	A		NA	-	NA .	NA NA		NECOVERY	1
+	22. DEPO	HTTOM C	W MO	I.F	BACIGFELI	_		DIG WELL			45.0				NA X	1
1				-				/	O I I	R (SPECIFY)		MATURE OF M	7.77000	ly		
1				• • • • • • • • • • • • • • • • • • • •							<u> </u>	ŕ	<del></del>			┨
1	(ft)	DEPT	*		DESCRIPTION	N OF MATE				SOL SCHEE RESLATE		ELOW COUNTS		ND.	Mecs	
7	93.71 Top		#	Black top	and stone								10" H	ammer	bit	-
	·		#									Air Rotary				F
		5	ゴ	Red, silty-!	ine sand with cl	ay and fi	ragmenti	•		HNu - ND		3, 3, 3, 3	Soft			F
7	•		E	01 34114514						13.0	<del></del>	Air Rotary	3010		<del></del>	F
1		10 -	뒥	Red, sandy of sandsto	silt with clay a	nd fragme	ente	*		HNu • ND		6, 11, 15, 16	Modin	n dens		
1			$\exists$									Air Rotary		ii Qena	<u></u>	E
-		15 —	7		silt to silty son of red sandston					HNu • ND		10, 13, 37, 2	2 0			E
3			E	,, .,,								Air Rotary	7 Dense			E
	73.71 ledrock	20	<del>]</del>	Hord, red :	andstone	· · · · · · · · · · · · · · · · · · ·		<del></del> -								-
			#		•							Air Rotary				E
1		25	4								!	:	AA 981	)_ gu ~	tool accinc	E
3			#							. '			and g	rout in	teel casing picae.	F
וב			4												i. re-enter mer bit.	E
		30 —	7							•			Water	used	to settle dust.	
"			7													E
1		35 —	4			•										E
	57.01 Sottom		╪													E
'	- v.tom	40 —	E	Bottom	of hole at 36.7'							-				þ
1			$\exists$													F
اذ			7													E
-	I		_								-		•			
		_	于													<u> </u>
1		-														

						CONTRACTOR	36	MW-8							
	Kodatux Sum B. Fair Lawn, NJ							<b>07</b> 1	OF 1 SHEETS						
						1.	OCATION Bridgewater,								
S. NAME OF DRILLER					6.1	4. MANUFACTURER'S DESIGNATION OF DRLL									
Sean		-	ا متر محم		- 6 '''		8. HOLE LOCATION NJ GEODETIC SURVEY CONTROL								
AD S	MPL	NG EC	OF DIELLING DUPLENT	Mobile 80 - Air Rota	<b> *</b> '	IOLE LOCATION LAT. 40°56'	ROL								
			ŀ	2" OD 24" split spoc	n sampler	9.5	UNFACE ELEVATE		U GEODETIC S		ONTROL	<del></del> -			
				6" OD hammer bit			88.72			ONVE! C	ONTROL				
						10.	DATE STARTED	PLETED	PLETED						
2. OVER		v 714					10/21/91 DEPTH GROUNDWA	2/91							
	4.0'	7 115	nuicos				Water at 27'		COUNTENED	·	-				
3. DEPTH	DAIL	9	ITO ROCK			16. (	EPTH TO WATER		PED THE AF	TER DRILLE	NG COMPLET	D			
	23.6'						Static water	level at	27.32' below	top of c					
4. TOTAL	. <b>DEP</b> 1 37.6'	TH OF	HOLE	•		17. (	THER WATER LET	VB. NE/	<b>SUIDEDITS (SP</b> 11/14/91 - ser	ECFY)	651 110 110 1	A.,			
a. acom		M S/	MPLES	DISTURBIS	UCHTU					abands: er	65" (12/19/	<b>4</b> 17			
	lone	<b></b>		NA	NA NA		19. TOTAL HAMBER OF None								
O. SALF	LES P	OR C	ENCAL MALYS	s voc	NETALS	01	HER GEREGETY	ОТН	DR (SPECIFY)	011 <b>63</b>	(SPECIFY)	21 TOTAL COR			
N	ione			NA .	NA		NA		NA	,	VÁ.	RECOVERY			
2. DISPO	SITION	07 1	OLE .	BACKFELED	MONTORNS WE	L 01	HER (SPECIFY)	23.9	CONSTURE OF DE	PECTOR		NA X			
					/			1 .	French >>>		/				
	Γ		ī		L			0	7		may				
DLEV.	00	PTH		DESCRIPTION OF IA	ATERNILS		SOL SCREE		BLOW						
(ft)			Top soil			RESULT	<b>*</b>	counts	1						
88.72 Top		=	Red, sandy	, silty clay with hard, r						" Hammer	bit				
•		=	sandetone	fragments			HNu - ND		20, 20, 50/4"  Air Rotary						
	3	$\overline{}$									Refusal at 6'- 4"				
		7	•												
	10			•			HNU - ND		20. 50/1 <sup>s</sup>						
		-					THOU Y NO	,	Air Rotary		efusal at 10	·- /··			
74.72	ـ ـ ا		Very hard	red sandstone.	-		<u> </u>		~ ~~~						
edrock	•	Very nore		, red sandstone.					Air Rotary						
	20 —								- we workery	1					
			Soft, weath		-										
		1	nara, 180 s	andstone				Air Rotary							
	25 —														
		-	Softer, and	i alighty wet						At	1 25'- 6" s nd grout in	teel casing picae.			
		7								Af	iter 24 hrs th 6" hamm	. re-enter			
	30	_								]					
		7						i		l					
	35 -	_								ŀ					
I		7													
\$1.12		7	Bottom	of hole at 37.6'							<del></del>				
		<b>-</b>		್ ಬ್ಯಾಪ್ ಆತ್ ಆಕುಆ						- 1					
	40 -	-	i e							- 1					
51.12 ottom	40 -	111					1								
	40			-											
	40	استبات		-											
	40	1111													

					RILLING	NG LOG							1
	1. COMPA			1	2. DRALING SUBCONTRACTOR Summit Drilling Co., Inc.						SHEET 1 OF 1 SHEETS		
7	3. Fair Lawn, NJ					4. LOCATION Bridgewater, NJ							$\frac{1}{2}$
-	S. NAS	OF DRELLER	· · · · · · · · · · · · · · · · · · ·			6. MA	MAFACTURER'S (		TION OF DRALL	<u> </u>		<del></del>	$\frac{1}{2}$
	7. SIZES		OF DRELING	Mobile 80 - Air Rota	ry Drill	8. HO	LE LOCATION			VEY CONTROL			+
	•			10" OD hammer bit 2" OD 24" split spec	9. 50	LAT. 40°56'36.9"; LONG. 74°07'42.9"  8. SURFACE ELEVATION NJ GEODETIC SURVEY CONTROL							
اد			F	6" OD hammer bit		91.66	11. DATE COMPLE		1				
_\	44 01/201					10/23/91 10/24/							
ןנ		15.0'	CIDESS			15.00	<b>PTH GROUNDW</b> A Water at 26						}.
<u>.</u>		1 <b>078LLED</b> 1 24.9'	NTO ROCK		_					top of casing			1
		. <b>DEPTH OF</b> 39.9'	HOLE						ANDONS C				1
		ECHOCAL S.	MPLES	DISTURSED	UNCUSTURE NA	1	M. TOTAL MAIS				127 107		1
			HENCAL MULYS	s yoc	METALS	HTO	er apeary		DR (SPECIFY)	OTHER CIPE	<b>2</b> 70	21. TOTAL CORE	-
S .		None		NA	NA		NA		NA	NA		NA X	
	22. DISPOSITION OF HOLE		BACKFLLED	MONETORNIO WEL	L OTH	er (specify)			PECTOR	<u>/.</u>			
	BLEV. DEPTH			DESCRIPTION OF NATIONALS			SOR SOREIDE		BLOW			was	1
<u>,</u>	(ft) 91.68	-	Black top	and stone			MENAT	.18 00		10 <sup>11</sup> Ho		lammer bit	
	Тор		Red, sandy	, silt					Air Rotary				E
		* —	Red, silty i fragments	medium grained sand to of red sandstone		HNu - ND		13, 13, 17, 2	6 Dense	Dense			
			Red. silty	ine to medium grained sand with - of red sandstone. rock at 13'			HNu = ND		Air Rotary				F
			fragments of Weathered ro						9, 14, 25, 2	0 Dense	Dense		F
	76.66 Bedrock	<b>15</b> —		sandstone with thin into	<del></del>			Air Rotary		D. 6 1 A 451		E	
				k (shale?) at 23', 25' as					50/0	Ketus	Refusal at 15'		E
•		20 —						Air Rotary		At 20'- 6" steel casing and grout in plage.		F	
		25								After with 6	After 24 hrs. re-enter with 6" hammer bit		F
													F
		30 —											E
					•								E
		35											E
ı	51.76	. =											E
	31.76 Bottom		Bottom	of hole at 39.9'		<u></u>					<b></b>		E
		=											E
			,										E
'L			<u> </u>		· · · · · · · · · · · · · · · · · · ·	······	<u></u>						E

	-			2. C%U.	LUG			MW-10
Kode	atux			Si	ummit Drilling Co., Inc	•	1	
<b>3.</b>					4. LOCATION			SHEETS
Foir	Lawn, NJ				Bridgewate	r, NJ		
S. NAME	OF DRELLER				8. WARFACTURER'S	DESIGNATION OF DR	ή,	
Sean					Mobile 80			
. SIZES	MO TYPES	OF DRELING	Mobile 80 - Air Rot	ary Drill	& HOLE LOCATION	NJ GEODETIC S	URVEY CONTROL	
~~·	marine Ed		10" OD hammer bit		LAT. 40°56	3'31.9"; LONG. 74 9	07'45.3"	
		Ε	2" OD 24" split spe	on sampler	D. SUNFACE DLEVA	NON NJ GEODETI	C SURVEY CONTROL	
			6" 0D hammer bit		96.56		- JOHNET CONTROL	•
					10. DATE STARTED		TL DATE CONFLETED	
					10/23/91		10/24/91	
	BURDEN THE	30E33			15. DEPTH GROUNDY	MATER DICOUNTERED	-L	
	14.0'					_		
	H DRILLED IN	TO ROCK			M. DEPTH TO WATE	R NO ELPED THE	AFTER DALLING CONFI	LETTED
	22.7'				Static water	r level at 25.33' bel	low top of casing (10	0/29/91)
	L DEPTH OF 36.7'	HOLE			17. OTHER WATER	EVEL NEWSTERNITS	(SPECIFY)	<del></del>
			T			69.07' (11/14/91 -	sampling); 66.33' (12/	19/91)
	ECHOCAL SA None	<b>WLES</b>	DISTURBED	UNDISTURE NA	D 10. TOTAL MA	GER OF CORE BOXES	3	
		DECAL MALYE				None		
		ENGAL MALYS	ls voc	METALS	OTHER COPECIFY	OTHER CIPECIFY	OTHER (SPECIFY)	
ľ	None		NA.	NA NA	NA.	NA.	NA	RECOVER
2. DISPO	DETTION OF H	OLE .	BACGELLED	MONTORNIS WELL		23. SIGNATURE OF	I AMERICAN	NA X
						-		
·						- Com	m. moochy	•
ELEY.	DEPTH							
(ft)	'''		DESCRIPTION OF 1	MATURES.	SOL SCRI			REMINIS
6.56		Top soil					10" Hamm	
Тор	1 =	,					JO ROBBI	er sit
	1. 7					Air Rotor	צי	
	l, <u> </u>	Red, silty s	and with fragments of ained sandstone	of	HNu • N	0 00 00 3		
	1 -		miae sendatone		1019 -	4D 21, 25, 3	8, 30 Dense	<del></del>
	1 -			•				
	<u> </u>	Day W			1	Air Rota	ry	
	» —	Red, silty s	and with fragments o	of .	HNu - N			
	<b>8</b> —	Red, silty s red fine gr	and with fragments of ained sandstone	of	HNu - M	4D 12, 20, 2	1, 20 Dense	
12.56	10 -	red fine gr	ained sandstone		HNu - A	12, 20, 2 Air Rotor	1, 20 Dense	
i2.56 edrock	10	red fine gr	ained sandstone		HNu = N	4D 12, 20, 2	1, 20 Dense	
	10 1111	red fine gr	ained sandstone		HNu = N	12, 20, 2 Air Rotor	1, 20 Dense	
	15	red fine gr	ained sandstone		HNu - A	12, 20, 2 Air Rotor	1, 20 Dense	
	<b>1</b>	red fine gr	ained sandstone		HNu = 1	12, 20, 2 Air Rotor	1, 20 Dense 'y 'y  At 20'- 6'	' steel casing
	<b>1</b>	red fine gr	ained sandstone		HNu - 1	12, 20, 2 Air Rotor	At 20'- 6' and grout After 24	in picae. hrs. re-enter
	<b>1</b>	red fine gr	ained sandstone		HNu = N	12, 20, 2 Air Rotor	1, 20 Dense Ty  At 20'- 6' and grout	in picae. hrs. re-enter
	20	red fine gr	ained sandstone		HNu = A	12, 20, 2 Air Rotor	At 20'- 6' and grout After 24	in picae. hrs. re-enter
	20	red fine gr	ained sandstone		HNu = N	12, 20, 2 Air Rotor	At 20'- 6' and grout After 24	in picae. hrs. re-enter
	20	red fine gr	ained sandstone		HNu - N	12, 20, 2 Air Rotor	At 20'- 6' and grout After 24	in picae. hrs. re-enter
	20	red fine gr	ained sandstone		HNu - N	12, 20, 2 Air Rotor	At 20'- 6' and grout After 24	in picae. hrs. re-enter
	20	red fine gr	ained sandstone		HNu = N	12, 20, 2 Air Rotor	At 20'- 6' and grout After 24	in picae. hrs. re-enter
e drock	20	red fine gr	ained sandstone		HNu = N	12, 20, 2 Air Rotor	At 20'- 6' and grout After 24	in picae. hrs. re-enter
	20	Hard, red s (shale?) at	andstone with zones 20.5', 23', and 28'		HNu - N	12, 20, 2 Air Rotor	At 20'- 6' and grout After 24	in picae. hrs. re-enter
igrock	20	Hard, red s (shale?) at	ained sandstone		HNu - N	12, 20, 2 Air Rotor	At 20'- 6' and grout After 24	in picae. hrs. re-enter
igrock	20	Hard, red s (shale?) at	andstone with zones 20.5', 23', and 28'		HNu - N	12, 20, 2 Air Rotor	At 20'- 6' and grout After 24	in picae. hrs. re-enter
igrock	20	Hard, red s (shale?) at	andstone with zones 20.5', 23', and 28'		HNu = N	12, 20, 2 Air Rotor	At 20'- 6' and grout After 24	in picae. hrs. re-enter
igrock	20	Hard, red s (shale?) at	andstone with zones 20.5', 23', and 28'		HNu = N	12, 20, 2 Air Rotor	At 20'- 6' and grout After 24	in picae. hrs. re-enter
igrock	20	Hard, red s (shale?) at	andstone with zones 20.5', 23', and 28'		HNu - N	12, 20, 2 Air Rotor	At 20'- 6' and grout After 24	in picae. hrs. re-enter
igrock	20	Hard, red s (shale?) at	andstone with zones 20.5', 23', and 28'		HNu - N	12, 20, 2 Air Rotor	At 20'- 6' and grout After 24	in picae. hrs. re-enter

1. COMPA				RILLING L						PB-2	7
Kode			•			illing Co., Inc.			i	39 <b>02</b> 7 1	ヿ
3.						CATION				OF 1 SEETS	_
	Lawn, NJ					Bridgewater,	LN				Ì
S. NAME Sean	OF DIRLLES				G. MA	MODILE 80	DESIGNA	TION OF DRALL	<del></del>		7
7. SIZES	AND TYPE	S OF DRILLING	Mobile 80 - Air Rote	ry Drill	8. HC	LE LOCATION	NJ G	EODETIC SUR	YEY CONTROL		$\dashv$
~~ ·		- CONTRACT	6" OD hammer bit					LONG. 74° 07			
			2" OD 24" split spo	on sampler	8. SV	Not Medeure		U GEODETIC	SURVEY CONTRO	DL .	$\neg$
					10. D.	ATE STARTED		<u> </u>	IL DATE COMPLETE	<b>D</b>	
						10/22/91			10/23/91		
	<b>SURDEN TH</b> 18.0'	COESS			15.00	30.0' (possibl		COUNTERED			$\neg$
13. DEPTI	H DRILLED	NTO ROCK		<del></del>	16. DE		-	LAPSED THE A	TER DRILLING COM	PLETED	$\dashv$
	18.0'					Not Measured	1				
	L <b>DEPTH O</b> 36.0'				17. 01	HER WATER LET	VEL ME		ECEY		٦
	ECHRECAL, S None	MPLES	DISTURBED	UNDISTURBI	<b>20</b>	S. TOTAL MAG	ER OF None	CORE SOMES			7
		HOCAL MALY	SES YOC	HETALS	0114	ER (SPECIFY)	ОТН	ER GPEGFY)	OTHER ISPECT		
	None 		NA NA	NA		NA.		NA	NA	RECOVERY NA Z	
t2. DESPO	MITTON OF	HOLE	BACIFILED	MONETORING WELL	HTO	ER (SPECIFY)		MATURE OF M			7
Aban	doned wit	h grout					0	For my	7. Mood	4	
ELEV.	DEPTH		DESCRIPTION OF L	MTERALS		SOL SOREE		BLOW		PDURES	7
					·			Air Rotary			ŧ
	s	Red sand	y silt with some clay					,			F
		‡				<u> </u>		8, 15, 17, 15			E
	10 —	Sandy sill	: with clay	_				Air Rotary			E
	] :	1 34.0,	. with city	-				31, 51, 36, 3	2		丰
		<b>.</b>				1		Air Rotary			Ŧ
		ned sond	y silt with clay, with so	ne rock fragments				12, 9, 10, 8		<del></del>	士
edrock	:	Hard red	sandstone with zones	of eafter rack	· ·						丰
	20	at 19', 21',	28', and 31'.					Air Rotary			E
											E
	25	3	•								E
	:					,		}			F
	so	1									F
	_	1							Possib	le water zone	F
	=	1						<u>'</u>			F
	35					<u></u>					F
	] :	Bottom	of hole at 36.0'								丰
		1									F
	[+o :	1				I		· ·			
	#• <u> </u>	1				i		ł	i		
	10										E
	40										
	40										

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0000	Y NAC	,		- UN	RILLING L		ONTRACTOR		Maria de Carlos T	7 · ×1W.		PB-3
Koda		•					illing Co., Inc.				340	•
Fair	Lawn, N	IJ	<del></del>				CATION Bridgewater.	N. I	<del></del>	<del></del>	100	SHEETS
	OF DRALL	B				6. W	STAGTURER'S		TION OF DEEL			
Sean							Mobile 80					
MO S	APLING	EQ	OF DRELLING SPACE OF	Mobile 80 - Air Rotar 6" OD hammer bit	y Drill	B. HC	<b>LE LOCATION</b> LAT. 40°56'3	NJ GE 35.7":	EODETIC SUR	VEY CONTI	ROL	
				2" OD 24" split spee	n sampler	2. 53	WAGE BLEVATIO		U GEODETIC		ONTROL	
			_				Not Measure					
			<del> </del>	<u> </u>		10.0	10/24/91			11. DATE COM		
	MODI	THEC	0€33		<u> </u>	15. D	DTH GROUNDWA	TER D	COUNTENED			<del>.</del>
•	3.0'	n inc	TO ROCK			-	Not Encounte					
	27.01		, v nous			W. U.	PTH TO WATER Not Measured		LAPTED THE A	FTER DRELLIN	is complet	D
	DEPTH 10.0'	OF	HOLE		-	17. 01	HER WATER LET	W. W	evidens o	PECFYI		
	CHOCAL	. 34	PLES	DESTURBED	UNDSTUBBLE	Ц,	10. TOTAL MAIS	<b>R</b> of	COST BOXES			
	lone			NA	NA			None				
	LES FOR Jone	CHE	DECAL MALYSE		NETALS	6	ER (SPECIFY)	0774	DR (SPECIFY)	OTHER (	SPECETY)	21. TOTAL CORE
		_		NA	NA .		NA		NA .	N	<b>A</b>	NA X
	SITION O			BACIGILLED	MONETONING WELL	OTH	ER (SPECETY)	•	MUTURE OF I		. /	
Abund	ioned v	nun	grout				· · · · · · · · · · · · · · · · · · ·	0	Fynn y	m. m	roody	
ELEV.	969-11	*		DESCRIPTION OF IM	ATEMAS .		SOL SOREE		BLOW		10	WAGE
		7	Black top o	nd stone silty sand grading into						6"	Hammer	bit
		#	weathered i	ed sandstone					Air Rotary			
	5 -	╡							10, 31, 5/5	<u> н</u>	rd	<del> </del>
		E							Air Retary			<del></del>
	10 -	긬	Red brown red sandsto	silty sand with fragme	inte of	•	<u> </u>					
adrock		#	reg sanasta	ng					18, 12, 7, 11	Me	d. dense	
	<b>15</b> –	彐	Hard red so	mdstone					Air Rotary			
		E										
-	20	ᅼ										
		4					1			1		
	25 —	Ε								İ		
		4										
		-							ļ	1		
		E										
	30	1								ļ		
	30 —											
		ساسيات								We	iter used	to settle dust
	30 —	ساستلسن								We	iter used	to settle dust
	30 —	ministration	Salte -	A hale at 40 C						We	ster used	to settle dust
	30 —	mhanhantar	Bottom o	f hole at 40.0°		<del></del>				We	ater used	to settle dust
	30 —		Bettem o	f hole at 40.0°	·	·				We	ater used	to settle dust
	30 —	ו זון זויין וויין וויין וויין וויין	Bettom o	f hole at 40.0'		· · · · · ·				We	ater used	to settle dust

				DR	RILLING	LOC	3				HOLE	o. B-4
L COMP/ Kod	•						CONTRACTOR Drilling Co., Inc.				SEET	-
i. Fair	Lav	⊎n, NJ		· · · · · · · · · · · · · · · · · · ·		4.1	LOCATION Bridgewater,	N 1			<b>OF</b> 1	SEETS .
NAC			R		. <u> </u>	6.1	MANUFACTURER'S		TION OF DREAL	<del></del>		
Sear	ANE	TYPE	S OF DRELLING	Mobile 80 - Air Rotar	ry Driff	- 8.	Mobile 80	NI C	ODETIC CUR	EY CONTROL		<del></del>
AND S	5.ALF	CING E	TIGHTUP	6" OD hammer bit				34.6":	LONG. 74° 07'	42.7"	•	
			•	2" OD 24" split spoo	n sampler	• :	Not Measure	301 N d	J GEODETIC S	SURVEY CONT	ROL	
						10.	DATE STARTED		11	L DATE CONFLE	TED	
OVER		NO TH	100@38			16.	10/25/91  DEPTH GROUNDWA	TEO 504	MA POTTON	10/25/91		· · · · · · · · · · · · · · · · · · ·
	10.0						Not Encounte	red				
	30.C		NTO ROCK			18.	DEPTH TO WATER Not Measured		APSED THE AF	TER DRELLING C	OFLID	<del> </del>
			F HOLE		· · · · · · · · · · · · · · · · · · ·	17.	OTHER WATER LET		SURDIDITS (SF	<b>ECFY</b>	<del></del>	
40.0' 18. GEOTECHOCAL SAMPLES DISTURBED UNGS							10. TOTAL MAG	R or	-052 30022		<del></del>	
	None		HENCAL MALY	NA NA	NA		'	None				
	None	•		NA VOC	NETALS NA	- 01	NA	OTH	R (SPECIFY)	OTHER CHEC	3	RECOVERY
. DISPO	SITK	on of	HOLE	BACISTELED	MONITORNIA WE	1 6	NA DER (SPECFY)	99 -	NA MATURE OF DE	NA		NA X
Aban	done	ed wit	h grout	~		<del>-                                     </del>	ings targer ()			77. 7776	nade.	-
LEV.	Γ.				<u>.                                    </u>	<u>L</u> ,			7		7	<u>.                                    </u>
	Ľ	OTN —		DESCRIPTION OF MA	TENALS		SOL SCHEE REBLATI		BLOW COUNTS		RDAR	
		•	Red brown	silty sand with frooms	nts of					8" Ha	mmer bit	
	5		weathered	sandstone					Air Rotary			
		-	<u> </u>						16, 50, 44, 3	8	- · · · · · · · · · · · · · · · · · · ·	
trock	10								Air Rotary			
		=	Hard red s	candatone		•			Air Rotary	Water	used to	settle dust
	15		‡									
		-	]									
	20		-				Į	1				
		=	}									
	25		1									
		=	1				'			İ		
	30		1									
		Ξ	1									
		-	1					ŀ			•	
	35		1	•								. 1
	35						· .			·		`
	36 40											
			Bottom (	of hole at 40.0°		-						
			Bottom (	of hole at 40.0°	******							
			Bottom (	of hole at 40.0°								

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Sear Mobile 80  - ASSES NO TYPES OF DESLINE - CO D Ammers bit - C' OD Ammers bit - C' OD Ammers bit - C' OD Ammers bit - C' OD 24" spit spoon sempler - S. DATE STATUS - NOT MENURUM IN GEODETIC SURVEY CONTROL - LAT. 40"59:33.3"; LONG. 74"0792.5"  12. OVERSANDEN TROMPS - S. DATE STATUS - NOT MENURUM IN GEODETIC SURVEY CONTROL - LAT. 40"59:33.3"; LONG. 74"0792.5"  13. DATE STATUS - NOT MENURUM IN GEODETIC SURVEY CONTROL - LAT. 40"59:33.3"; LONG. 74"0792.5"  14. DATE STATUS - NOT MENURUM IN GEODETIC SURVEY CONTROL - LAT. 40"59:33.3"; LONG. 74"0792.5"  15. DATE STATUS - NOT MENURUM IN GEODETIC SURVEY CONTROL - LAT. 40"59:33.3"; LONG. 74"0792.5"  15. DATE STATUS - NOT MENURUM IN GEODETIC SURVEY CONTROL - LAT. 40"59:33.3"; LONG. 74"0792.5"  15. DATE STATUS - NOT MENURUM IN GEODETIC SURVEY CONTROL - NOT MENURUM IN GEODETIC SURVEY CONTROL - NOT MENURUM IN GEODETIC SURVEY CONTROL - NOT MENURUM IN GEODETIC SURVEY CONTROL - NOT MENURUM IN GEODETIC SURVEY CONTROL - NOT MENURUM IN GEODETIC SURVEY CONTROL - NOT MENURUM IN GEODETIC SURVEY CONTROL - NOT MENURUM IN GEODETIC SURVEY CONTROL - NOT MENURUM IN GEODETIC SURVEY CONTROL - NOT MENURUM IN GEODETIC SURVEY CONTROL - NOT MENURUM IN GEODETIC SURVEY CONTROL - NOT MENURUM IN GEODETIC SURVEY CONTROL - NOT MENURUM IN GEODETIC SURVEY CONTROL - NOT MENURUM IN GEODETIC SURVEY CONTROL - NOT MENURUM IN GEODETIC SURVEY CONTROL - NOT MENURUM IN GEODETIC SURVEY CONTROL - NOT MENURUM IN GEODETIC SURVEY CONTROL - NOT MENURUM IN GEODETIC SURVEY CONTROL - NOT MENURUM IN GEODETIC SURVEY CONTROL - NOT MENURUM IN GEODETIC SURVEY CONTROL - NOT MENURUM IN GEODETIC SURVEY CONTROL - NOT MENURUM IN GEODETIC SURVEY CONTROL - NOT MENURUM IN GEODETIC SURVEY CONTROL - NOT MENURUM IN GEODETIC SURVEY CONTROL - NOT MENURUM IN GEODETIC SURVEY CONTROL - NOT MENURUM IN GEODETIC SURVEY CONTROL - NOT MENURUM IN GEODETIC SURVEY CONTROL - NOT MENURUM IN GEODETIC SURVEY CONTROL - NOT MENURUM IN GEODETIC SURVEY CONTROL - NOT MENURUM IN GEODETIC SURVEY CONTROL - NOT MENURUM IN GEODETIC SURVEY CONTROL - NOT MENURUM I	S. NAME (	of DRILLER										<del></del>	-
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12. DEPTH SHOULD STO ROCK  13. DEPTH OF MATER AND ELPHED THE ATTER DRILLING CONFLICTED  14. TOTAL DEPTH OF MATER AND ELPHED THE ATTER DRILLING CONFLICTED  15. OFFIT OF MATER LEVEL MEASUREMENTS CREEKY)  17. OTHER WATER LEVEL MEASUREMENTS CREEKY)  18. OEFTROMERS ASSETLES  NO. NA. LOCAL MANAYERS  NO. NA. NA. NA. NA. NA. NA. NA. NA. NA. NA						10. DAT	E STARTED			IL DATE (	COMPLETED		-
Not Encountered  13. DEFTH DEALED INTO ROCK  28.5'  14. TOTAL REPTHS OF HOLE  37.0'  15. OTHER WATER LEVEL MEASUREDITS CEPTOFY)  17. OTHER WATER LEVEL MEASUREDITS CEPTOFY)  18. OCCURROSCELL ANALYSIS  None  18. ANA  NA  NA  NA  NA  NA  NA  NA  NA  NA	**					<u> </u>				10/:	25/91		
14. TOTAL REPTH OF HOLE 37.0  14. STOTAL REPTH OF HOLE 37.0  15. STOTAL REPTH OF HOLE 37.0  16. STOTAL REPTH OF HOLE 37.0  16. STOTAL REPTH OF HOLE NA NA NA NA NA NA NA NA NA NA NA NA NA			30632						COUNTERED				7
S. SAMPLES FOR CRESCUL ANALYSIS VOC METALS OTHER CRECEPY) OTHER CRECEPY OTHER CRECEPY ANA NA NA NA NA NA NA NA NA NA NA NA NA			OTO ROCK						APRED THE A	TER DAL	THE CONTE	NED	7
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20. 24APLE FOR CHESCAL ANALYSIS VOC METALS OTHER CHECKY) OTHER CHESCAY PROPERTY NA NA NA NA NA NA NA NA NA NA NA NA NA	18. GEOTE	CHACY SY	with			1			CORE BOXES			<del></del>	-
None  NA NA NA NA NA NA NA NA NA NA NA NA NA			Chica mar			455				T			
22. DESPOSATION OF HOLE Abandoned with grout  DESCRIPTION OF MATERIALS  SOS. SCREEDING RESALTS  SOURTH OF MATERIALS  SOS. SCREEDING RESALTS  Black top and stone  Red-brown sity sand with weathered red sandstone  Red-brown sity sand with weathered red sandstone  Red-brown sity sand with weathered red sandstone  Air Rotary  Water used to settle dust  Water used to settle dust						OTHE		ОТН		OTHE		21. TOTAL CORE	١ ا
Abandoned with grout  DESCRIPTION OF MATERIALS  DOL SCREEDING RESIA.TS  DOL SCREEDING RESIA.TS  So Hommer Dit  Air Rotary  10, 44, 38, 15  Dense  Hard red sandstone  Air Rotary  Water used to settle dust  30  30  30  36	11 DW04											NA X	
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#### APPENDIX C

MONITORING WELL SCHEMATICS

### RADIAN

#### MONITOR WELL CONSTRUCTION SCHEMATIC

PROJECT: Kodalux, Fair Lawn, NJ MW-6 WELL ID: \_ DRILLING CO.: Summit Orilling Co. Inc. COORDINATES: Lat 40°56'35.7"; Long 74°07'50.6" SUPERVISED BY: LRM. Radian Corporation AQUIFER: Uppermost DRILLING METHOD: \_Air Rotary DEPTH TO WATER FROM MEASURING DATE COMPLETED: \_10/22/91 POINT (MP): 31.90' (11/14/91) FLUSH MOUNT Top of casing MP: MANHOLE COVER ELEVATION OF MP: 88.15 LOCKING CAP -HEIGHT OF MP RELATIVE TO GROUND LEVEL: -.30' DEPTH FEET CONCRETE PAD GROUND SURFACE GROUT TYPE: Cement-bentonite (8 gal. water to 5 lb. bentonite to 94 lb. Portland cement) 4.5 - 94 lb. bogs AMOUNT: \_ EMPLACEMENT METHOD: Tremie pipe RISER PIPE TYPE: Steel (20.0' pipe) DIAMETER: 6-inch BOREHOLE 10" cased: 6" open rock DIAMETER: 37.20' below MP DEPTH: TOTAL LENGTH OPEN ROCK: \_\_17.20' 20 25 -LEGEND SANDSTONE SHALE  $\nabla$ STATIC WATER LEVEL (11/14/91)

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П	PROJECT: Kodalux. Fair Lawn.	NJ WELL ID. MW-7/PB-1
	DRILLING CO.: Summit Orilling	NJ WELL ID:MW-7/PB-1 COORDINATES: Lat 40°56'36.1"; Long 74°07'45.9
43	SUPERVISED BY: LRM. Redien (	Corporation AQUIFER: Uppermost
- 4	DRILLING METHOD: Air Rotary	DEPTH TO WATER FROM MEASURING
	DATE COMPLETEDS 10/24/91	POINT (MP): 33.15' (10-29-91)
	FLUSH MOUNT	MP: Top of casing
	MANHOLE COVER -	ELEVATION OF MP: 93.31
-	LOCKING CAP	HEIGHT OF MP RELATIVE TO GROUND LEVEL: -0.4'
	DEPTH \	UCTOUT OF ME WETHITAE IN PROOND FEASTS -014
,,,,,,,,	FEET \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	NCRETE PAD
	0 -	- GROUND SURFACE GROUT
		TYPE: Cement-bentonite (8 gal. water to 5 lb. bentonite to 94 lb. Portland cement)
زر		AMOUNT: 9 - 94 lb. bags
	s =   · * ]	EMPLACEMENT METHOD:Tremie pipe
	-	
14	- 1:4	RISER PIPE
1		TYPE:Steel (25.0' pipe) DIAMETER:S-inch
	10 - [;•,·]	OTHINE LEUT
	-   -   -   -   -   -   -   -   -   -	BÖREHOLE
4		DIAMETER: 10" cased: 6" open rock
121/4	-	DEPTH:36.25' below MP
	15 - [7, 4 ] - 1	TOTAL LENGTH OPEN ROCK:
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STATIC WATER LEVEL

	RAPIAN MONITOR	WELL CONSTRUCTION SCHEMATIC
•	PROJECT: Kodalux, Fair Lown.	NJ WELL TO MW-8
•	DRILLING CO.: Summi+ Orilling	NJ WELL ID: MW-8  Co., Inc. COORDINATES: Lat 40°56'38.3": Long 74°07'47.6
•	SULFUATOFO BA: THE MEGICUL C	orpordion ADITEE, Uppermost
1	UHILLING METHOD: Air Rotary	DEPTH TO WATER FROM MEACURING
,	UATE CUMPLETED: 10/22/91	POINT (MP): 27.32' (10-29-91)
	FLUSH MOUNT MANHOLE COVER	MP: Top of casing
	LOCKING CAP	ELEVATION OF MP: 88.38
	DEPTH \	HEIGHT OF MP RELATIVE TO GROUND LEVEL:0.34'
	FEET COR	NCRETE PAO
		GROUND SURFACE
		GROUT
		TYPE: Cement-bentonite (8 gal. water to 5 ib. bentonite
	-   .a.     .a.	to 94 lb. Portiond coment)
١		AMOUNT: 9 - 94 Ib. bags EMPLACEMENT METHOD: Tremie pipe
١		CHICAGOLICAT METHOD:
	-  : <u>^</u> .    • <u>^</u> .	RISER PIPE
ı		TYPE: Steel (25.0' pipe)
۱	10 -	DIAMETER:6-Inch
ı	_ [.4]	BOREHOLE
1		DIAMETER: 10" cased: 6" open rock
		DEPTH: 37.22' below MP
ı	15 —	TOTAL LENGTH OPEN ROCK: 12.22'
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	35 —	LEGEND
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	_ 40 —	== SOFT ZONE

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STATIC WATER LEVEL (11/14/91)

] [	RAPIAN	MONITOR WELL CONS	STRUCTION SCHEMATIC
	DRILLING CO.: <u>_su</u> SUPERVISED BY: _	LRM. Radian Corporation	COORDINATES: Lat 40°56'36.9"; Long 74°07'42.9
	FLUSH MOUNT MANHOLE COVER — LOCKING CAP — PTH ET	ELEVATION	of casing  OF MP:91.24  MP RELATIVE TO GROUND LEVEL:0.42'
0	- 531	TYPE: Cem	GROUT ent-bentonite (8 gai. water to 5 lb. bentonite 94 lb. Portland cement)
5		AMOUNT: EMPLACEME	7 - 94 lb. bags  INT METHOD:Tremie pipe  RISER PIPE
10	_	TYPE: Sto	BOREHOLE
15		DEPTH:	10" cased: 6" open rock 39.52' below MP GTH OPEN ROCK: 19.52'
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STATIC WATER LEVEL (11/14/91)

	•
RAPICAL MONITOR WELL CON	STRUCTION SCHEMATIC
PROJECT: Kodalux, Fair Lawn, NJ DRILLING CO.: Summit Drilling Co., Inc. SUPERVISED BY: LRM. Radian Corporation DRILLING METHOD: Air Rotary DATE COMPLETED: 10/24/91	AQUIFER: Uppermost DEPTH TO WATER FROM MEASURING
FLUSH MOUNT MANHOLE COVER - MP: Top	of casing
	I OF MP:96.17
	MP RELATIVE TO GROUND LEVEL: -0.39
FEET CONCRETE PAD	· · · · · · · · · · · · · · · · · · ·
GROUND SURFACE	
	GROUT
TYPE: _Cen	ment-bentonite (8 ggl. water to 5 lb. bentonite
. <del>-</del>	94 lb. Portland cement) 7 - 94 lb. bags
	ENT METHOD:Tremie pipe
TYPE. SI	RISER PIPE
- DIAMETER:	6-Inch
10	
- DIAMETER	BOREHOLE
DEPTH.	10" oased: 6" open rock 36.32' below MP
	IGTH OPEN ROCK: 16.32'
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20 —	
25 <b>–</b>	•
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<b>-</b>	LEGEND

SANDSTONE SHALE

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STATIC WATER LEVEL (11/14/91)

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APPENDIX D

MONITORING WELL CERTIFICATION FORMS

Name of Permittee: Name of Facility:

Kodalux

Location:

Kodalux Fairlawn, Bergen County

NJPDES Number:

#### LAND SURVEYOR'S CERTIFICATION

Well Permit Number (as assigned by NJDEP's Bureau of Water Allocation: This number must be permanently affixed to the well casing.

Longitude (one-half of a second):
Latitude (one-half of a second):
Elevation of Top of Inner Casing
(cap off) (one-hundredth of a foot):
Source of elevation datum (benchmark, etc.)
If an alternate datum has been approved by the Department, identify here and give approximated elevation:

Approximate Elevation:

Owners Well Number (As shown on application or plan):

West 74 07 50.6 North 40 56 35.7

Casing 88.15 RIM 88.45

Rte 208 Control Mon. Station 109+0

99.58

MW-6

#### **AUTHENTICATION**

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment.

PROFESSIONAL LAND SURVEYOR'S SIGNATURE

Richard C. Mathews

PROFESSIONAL LAND SURVEYOR'S NAME (Please print or type)

New Jersey License #29353

SEAL

Name of Permittee:

Kodalux

Name of Facility:

Kodalux

Location:

Fairlawn, Bergen County

NJPDES Number:

#### LAND SURVEYOR'S CERTIFICATION

Well Permit Number (as assigned by NJDEP's Bureau of Water Allocation: This number must be permanently affixed to the well casing.

Longitude (one-half of a second):
Latitude (one-half of a second):
Elevation of Top of Inner Casing
(cap off) (one-hundredth of a foot):
Source of elevation datum (benchmark, etc.)
If an alternate datum has been approved by the Department, identify here and give approximated elevation:

Approximate Elevation:

Owners Well Number (As shown on application or plan):

West 74 07 45.9 North 40 56 36.1

Casing 93.31 RIM 93.71

Rte 208 Control Mon. Sta. 109+0

99.58

MW-7

#### **AUTHENTICATION**

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment.

PROFESSIONAL LAND SURVEYOR'S SIGNATURE

Richard C. Mathews

PROFESSIONAL LAND SURVEYOR'S NAME (Please print or type)

New Jersey License #29353

SEAL

Name of Permittee:

Kodalux

Name of Facility:

Kodalux

Location:

Fairlawn, Bergen County

NJPDES Number:

#### LAND SURVEYOR'S CERTIFICATION

Well Permit Number (as assigned by NJDEP's Bureau of Water Allocation: This number must be permanently affixed to the well casing.

Longitude (one-half of a second):
Latitude (one-half of a second):
Elevation of Top of Inner Casing
(cap off) (one-hundredth of a foot):
Source of elevation datum (benchmark, etc.)
If an alternate datum has been approved by the Department, identify here and give approximated elevation:

Approximate Elevation:

Owners Well Number (As shown on application or plan):

West 74 07 47.6 North 40 56 38.3

Casing 88.38 RIM 88.72

Rte 208 Control Mon. Sta. 109+0

99.58

B-WM

#### **AUTHENTICATION**

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment.

PROFESSIONAL LAND SURVEYOR'S SIGNATURE

Richard C. Mathews

PROFESSIONAL LAND SURVEYOR'S NAME (Please print or type)

New Jersey License #29353

**SEAL** 

Name of Permittee: Kodalux Kodalux

Location:

Fairlawn, Bergen County

NJPDES Number:

#### LAND SURVEYOR'S CERTIFICATION

Well Permit Number (as assigned by NJDEP's Bureau of Water Allocation: This number must be permanently affixed to the well casing.

Longitude (one-half of a second):
Latitude (one-half of a second):
Elevation of Top of Inner Casing
(cap off) (one-hundredth of a foot):
Source of elevation datum (benchmark, etc.)
If an alternate datum has been approved by the Department, identify here and give approximated elevation:

Approximate Elevation:

Owners Well Number (As shown on application or plan):

				_
North	40	56	36.9	

Casing 91.24 RIM 91.66

Rte 208 Control Mon. Sta. 109+0

99.58

MW-9

#### **AUTHENTICATION**

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment.

PROFESSIONAL LAND SURVEYOR'S SIGNATURE

Richard C. Mathews

PROFESSIONAL LAND SURVEYOR'S NAME (Please print or type)

New Jersey License #29353

SEAL.

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Name of Permittee: Name of Facility: Location: NJPDES Number:	Kodalux Kodalux Fairlawn, Bergen County	
LAND SURVEYOR'S	CERTIFICATION	
Well Permit Number (a NJDEP's Bureau of W This number must be perfect to the well casing.	ater Allocation:	
Longitude (one-half of Latitude (one-half of a Elevation of Top of Inn (cap off) (one-hundred Source of elevation date etc.) If an alternate datum haby the Department, ide give approximated elev	second): er Casing th of a foot): um (benchmark, as been approved ntify here and	West 74 07 45.3 North 40 56 31.9  Casing 96.17 RIM 96.56  Rte 208 Control Mon. Sta. 109+0
Approxim	ate Elevation:	99.58
Owners Well Number (application or plan):	As shown on	MW-10
AUTHENTICATION		
of those individuals important in submitted in submitted information cant penalties for submit onment.	n this document and all attach nediately responsible for obt is true, accurate and complet	examined and am familiar with the iments and that, based on my inquiry aining the information, I believe the e. I am aware that there are signifiing the possibility of fine and impris-

Richard C. Mathews

PROFESSIONAL LAND SURVEYOR'S NAME (Please print or type)

New Jersey License #29353

**SEAL** 

THIS FORM MUST I	BE COMPLETED BY THE P L CERTIFICATION - FORM	ERMITTEE OR HIS/HER AGENT B - LOCATION CERTIFICATION
Name of Permittee: Name of Facility: Location: NJPDES Number:	Kodalux Kodalux Fairlawn, Bergen County	
LAND SURVEYOR'S	CERTIFICATION	
Well Permit Number (a NJDEP's Bureau of W This number must be p to the well casing.	ater Allocation:	
Longitude (one-half of Latitude (one-half of a Elevation of Top of Inn (cap off) (one-hundred Source of elevation date etc.) If an alternate datum his by the Department, ide give approximated elevation	second): ler Casing lth of a foot): lum (benchmark, as been approved entify here and	West 74 07 44.7 North 40 56 36.2  Not requested
Approxim	nate Elevation:	
Owners Well Number (application or plan):	As shown on	PB-2
AUTHENTICATION	<b>.</b>	
of those individuals important on submitted information cant penalties for submitted information.	mediately responsible for obtaining false information including	examined and am familiar with the ments and that, based on my inquiry aining the information, I believe the c. I am aware that there are signifing the possibility of fine and impris-
PROFESSIONAL LAN	Dathive DSURVEYOR'S SIGNATUR	<b>UE</b>
Richard C. Mathews PROFESSIONAL LAN (Please print or type)	D SURVEYOR'S NAME	_

New Jersey License #29353
PROFESSIONAL LAND SURVEYOR'S LICENSE #

**SEAL** 

#### THIS FORM MUST BE COMPLETED BY THE PERMITTEE OR HIS/HER AGENT MONTTORING WELL CERTIFICATION - FORM B - LOCATION CERTIFICATION Kodalux Name of Permittee: Name of Facility: Kodalux Fairlawn, Bergen County Location: NJPDES Number: LAND SURVEYOR'S CERTIFICATION Well Permit Number (as assigned by NJDEP's Bureau of Water Allocation: This number must be permanently affixed to the well casing. Longitude (one-half of a second): 74 West 07 43.9 Latitude (one-half of a second): North 56 35.7 Elevation of Top of Inner Casing (cap off) (one-hundredth of a foot): Not requested Source of elevation datum (benchmark, etc.) If an alternate datum has been approved by the Department, identify here and give approximated elevation:

#### Approximate Elevation:

Owners Well Number (As shown on application or plan):

PB-3

SEAL

#### **AUTHENTICATION**

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment.

PROFESSIONAL LAND SURVEYOR'S SIGNATURE

Richard C. Mathews

PROFESSIONAL LAND SURVEYOR'S NAME (Please print or type)

New Jersey License #29353

.

Name of Permittee:

Kodalux

Name of Facility:

Kodalux

Location:

Fairlawn, Bergen County

NJPDES Number:

#### LAND SURVEYOR'S CERTIFICATION

Well Permit Number (as assigned by NJDEP's Bureau of Water Allocation: This number must be permanently affixed to the well casing.

Longitu	de (one-half of a second):
Latitude	e (one-half of a second):
Elevation	on of Top of Inner Casing
(cap of	f) (one-hundredth of a foot):
Source (	of elevation datum (benchmark,
etc.)	·
If an alt	ernate datum has been approved
by the I	Department, identify here and
give ap	proximated elevation:

Owners Well Number (As shown on application or plan):

PB-4

West

North

74

Not requested

07 42.7

56

#### **AUTHENTICATION**

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment.

PROFESSIONAL LAND SURVEYOR'S SIGNATURE

Richard C. Mathews

PROFESSIONAL LAND SURVEYOR'S NAME (Please print or type)

New Jersey License #29353

PROFESSIONAL LAND SURVEYOR'S LICENSE #

SEAL

THIS FORM MUST F	BE COMPLETED BY THE PLANT OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF T	ERMITTEE OR HIS/HER AGENT B - LOCATION CERTIFICATION
Name of Permittee: Name of Facility: Location: NJPDES Number:	Kodalux Kodalux Fairlawn, Bergen County	
LAND SURVEYOR'S	CERTIFICATION	
Well Permit Number (a NJDEP's Bureau of Wall This number must be perto the well casing.	ater Allocation:	
Longitude (one-half of a Latitude (one-half of a selevation of Top of Inne (cap off) (one-hundred Source of elevation datuetc.)  If an alternate datum haby the Department, idea give approximated elevations	second): er Casing th of a foot): em (benchmark, es been approved ntify here and	West 74 07 42.5 North 40 56 33.3  Not Requested
Approxim	ate Elevation:	
Owners Well Number (A application or plan):	As shown on	PB-5
AUTHENTICATION		
of those individuals important submitted in submitted information is cant penalties for submit onment.	this document and all attach nediately responsible for obtained in the strue, accurate and complete thing false information including	examined and am familiar with the ments and that, based on my inquiry aining the information, I believe the a. I am aware that there are signifing the possibility of fine and impris-
Richard C. Mathews		

PROFESSIONAL LAND SURVEYOR'S NAME (Please print or type)

New Jersey License 29353

**SEAL** 

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THIS FORM MUST F	SE COMPLETED BY THE P L CERTIFICATION - FORM	ERMITTEE OR HIS/HI B - LOCATION CERTI	R AGENT
Name of Permittee: Name of Facility: Location: NJPDES Number:	Kodalux Kodalux Fairlawn, Bergen County		
LAND SURVEYOR'S	CERTIFICATION		
Well Permit Number (a NJDEP's Bureau of W. This number must be pet to the well casing.	ater Allocation:		<del>-</del> -
Longitude (one-half of	a second):	West 74 07 43.4	
Latitude (one-half of a s Elevation of Top of Inn	second): er Casing	North 40 56 33.1	
(cap off) (one-hundred Source of elevation date	th of a foot):	Not requested	
etc.) If an alternate datum ha by the Department, ides give approximated elevi	ntify here and		
Approxim	ate Elevation:		
Owners Well Number (A application or plan):	As shown on	PB-6	
AUTHENTICATION	•		
of those individuals impossible information is	of law that I have personally this document and all attach nediately responsible for obtains true, accurate and complete thing false information including	ments and that, based on ining the information, I is. I am aware that there ag the possibility of fine a	my inquiry believe the
		· ·	
Richard C. Mathews	Valuation of the second	_	
Please print or type)	OSURVEYOR'S NAME		
New Jersey License #	29353	SEAL	

APPENDIX E

**GROUNDWATER DEVELOPMENT RECORDS** 

Installation Project _ Initial/Fi Initial/Fi Time/Da Logger C Type, Siz Total Voi	te Start De on ID 6" Kodalux, F nal Ground nal Depth t te Finish D ode LM e/Capacity lume to Pur	airlawn, NJ water Depth _30.34 to Bottom of Well _ evelopment _0930/ of Pump or Bailer rge for (3)5 (circle of the _15	/// 10-29-91 plastic/tone) Well	ottom filling	') Below Measur - /3 gallon	oint ing Point
Time	Cummulative Volume (Gallons)	Clarity/Color	рН	Specific Conductivity (s mhos)	Temp °C	Comments
0930	-15	silty	7.52	600	Not Measured	bailed dry
			·			
	-					

Installation Project _ Initial/Fi Initial/Fi Time/Da Logger C Type, Siz Total Vo	te Start De on ID 6" Kodalux, F nal Ground nal Depth t te Finish D ode LM e/Capacity lume to Pur	velopment 0915/10  airlawn, NJ  water Depth 33.15  to Bottom of Well evelopment 0930/2  of Pump or Bailer rge for 3/5 (circle of the 15 Gallons	///	ible pump	) Below Measur	Point ring Point
Time	Cummulative Volume (Gallons)	Clarity/Color	pH	Specific Conductivity (a mhos)	Temp *C	Commests
0920	15	cloudy	7.52	630	Not Measured	pumped dry

Time/Da Installation Project Initial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial/Finitial	Well ID MW-8  Time/Date Start Development 0845/10-29-91  Installation ID 6"  Project Kodalux, Fairlawn, NJ  Initial/Final Groundwater Depth 27.32 / (FT) Below Measuring Point  Initial/Final Depth to Bottom of Well / 37.22 (FT) Below Measuring Point  Time/Date Finish Development 0900/10-29-91  Logger Code LM  Type, Size/Capacity of Pump or Bailer plastic bottom filling/3 gal  Total Volume to Purge for 35 (circle one) Well Volumes 44 Gallons  Actual Purged Volume 20 Gallons						
Time	Cummulative Volume (Gallons)	Clarity/Color	рН	Specific Conductivity (s mhos)	Temp ℃	Cochments	
0900	-20	cloudy, silty	7.58	570	Not Measured	bailed dry	
					3		
	,						

Well ID	MW-9			,		
		velopment <u>9:45 1</u> (	1.29.01	*		
Installation	on ID 6"	veropment <u>9.43 I</u>	<u> 740-71</u>			•
		aidem NI				
		airlawn, NJ				
	inai Ground	water Depth 27.50	<u>/</u>	(FT) Bel	ow Measuring	Point
Initial/Fi	nal Depth 1	o Bottom of Well	/	<u>39.52</u> (F1	) Below Measu	ring Point
		evelopment <u>0830</u> /	<u> 10-29-91</u>		_	•
	Code <u>LM</u>				_	
Type, Siz	e/Capacity	of Pump or Bailer	Plastic 1	bottom-filling	. 3 gal	
Total Vo	lume to Pu	rge for 35 (circle	one) Wel	Volumes 5	3 Gallons	
Actual P	urged Volum	ne 25 Gallor	ошо <i>ј</i> WС	r vommes	Cantons	
		ne <u>w</u> Cano	13			
Time	Cummulative Volume (Gallons)	Clarity/Color	pH	Specific Conductivity (s mhos)	Temp ℃	Comments
1015	5	cloudy	9.4	580	Not Measured	pumped dry
0830	20	cloudy	7.79	640	Not Measured	bailed dry
						, <u>u</u> ,
			<del> </del>			
			<del> </del>			
						<u>i                                     </u>
			T			<del> </del>

Well ID	_MW-10					
Time/Da	te Start De	velopment <u>1030/1</u>	0-29-91			
Installatio	on ID 6"		<del>y                                    </del>	• • • • • • • • • • • • • • • • • • • •	<del></del>	
		airlawn, NJ				
		water Depth 25.33	3 /	(FT) Rel	ow Measuring	Point
Initial/Fi	nal Depth t	o Bottom of Well	<u>/</u>	36 32 (FT	) Below Measu	ring Doint
		evelopment 1050/		<u> </u>	) Delow Meast	uma romi
Logger C			<u> </u>	——————————————————————————————————————	_	
		of Pump or Bailer	Plastic	hottom filling	2 cal	
Total Vo	lume to Pur	ge for 3/5 (circle	one) Wel	Wohang 4	Callege	
Actual Pr	urged Volum	ne 20 Gallon	OTIE) MEI	i volumes 4	8 Gallons	
. 101001 1 (	argoa voiui	danon	13			
						•
Time	Cummulative	Clarity/Color	На	San al San		<u> </u>
<del></del>	Volume	Carry/Costs	ber	Specific Conductivity	Temp °C	Comments
	(Gallons)			(s. mhos)		
						-
1050	~20	cloudy	7.64	650	Not Measured	Bailed Dry
		· · · · · · · · · · · · · · · · · · ·	<del> </del>		<del> </del>	
				<del> </del>		
			1			
		, , , , , , , , , , , , , , , , , , ,				
			<del>†                                     </del>			<del>                                     </del>

APPENDIX F

**ANALYTICAL RESULTS** 



#### RECRA ENVIRONMENTAL, INC.



Chemical and Environmental Analysis Services

December 9, 1991

Ms. Lynn M. Moody Radian Corporation 155 Corporate Woods, Suite 100 Rochester, NY 14623

Re: Analytical Results

Dear Ms. Moody:

Please find enclosed results concerning the analyses of the samples recently submitted by your firm. The Pertinent Information regarding these analyses is listed below:

Quote #: NY91-945R

Project Name: Kodalus

Kodalux-Fairlawn, NJ Aqueous

Matrix: Samples Received:

11/16/91

Sample Date:

11/15/91

If you have any questions concerning these data, please contact Ms. Donna Bateman, Project Manager at (716) 691-2600 and refer to the I.D. number listed below. It has been our pleasure to provide Radian Corporation with Environmental Testing Services. We look forward to serving you in the future.

Sincerely,

RECRA ENVIRONMENTAL, INC.

Kenneth C. Halinowski, PhD

Vice President

KLWW/KCM/nam Enclosure

> I.D. #91-3386 #NY2A3811

The extraction date for Hexavalent Chromium was Movember 16, 1991.

within acceptable limits. Quality control analysis was performed on a batch basis. All results were

defined on the Organic and Inorganic Data Comment Pages. The enclosed data has been reported utilizing data qualifiers (Q) as

comments pertain to data on one or all pages of this report.

#### **ELITATIOS**

3500 from the Mational Institute of Occupational Safety and Health. o The analysis for Formaldehyde was performed in accordance with Method

Response. November 1986, SW-846, Third Edition.

Waste - Physical/Chemical Methods." Office of Solid Waste and Emergency o U.S. Environmental Protection Agency "Test Methods for Evaluating Solid

(Pederal Register) U.S. Environmental Protection Agency. Analysis of Pollutants Under the Clean Water Act. October 24, 1984

o 40 CFR Part 136 "Guidelines Setablishing Test Procedures for the

references unless noted otherwise in this report. presented refer to one of the following U.S. Environmental Protection Agency The method numbers results are indicated on the specific data table. The specific methodologies employed in obtaining the enclosed analytical

RETRODOLOGIES.

Amberst, New York 14228-2298 10 Herelwood Drive, Suite 106 Recre Environmental, Inc.

Prepared By

gocpeacet' MX 14623

155 Corporate Moods, Suite 100 Radian Corporation

Prepared For

YMYTALICYT BERAFLE

20492°I

VOLATILES DATA



# RADIAN CORPORATION AQUEOUS MATRIX METHOD 624 - PRIORITY POLLUTANT VOLATILE ORGANICS

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE NO. MW-1

SAMPLE DATE 11/15/

ANALYSIS DATE 11/18/91

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Acrolein	100	U
Acrylonitrile	100	lŭ
Benzene Bromodichloromethane	5.0	Ū
Bromoform	5.0	ט
Bromomethane	5.0	ט
Carbon Tetrachloride	10	ש
Chlorobenzene	5.0	U
Chlorodibromomethane	5.0	ā
Chloroethane	5.0 7.5	J
2-Chloroethylvinyl ether	10.3	l a
Chloroform	7.9	١٠-
Chloromethane	10	ט
1,1-Dichloroethane	50	1
1,2-Dichloroethane	5.0	U
L,1-Dichloroethene crans-1,2-Dichloroethene	16	1
1,2-Dichloropropane	8.7	
Cis-1,3-Dichloropropene	5.0	<b>ט</b> ן
rans-1,3-Dichloropropene	5.0	U
thylbenzene	5.0	U
Methylene chloride	5.0	ū
etrachloroethene	5.0	ū
,1,2,2-Tetrachloroethane	5.0 5.0	Ü
Coluene	5.0	l d
,1,1-Trichloroethane	87.0	10
,1,2-Trichloroethane	5.0	ט
richloroethene	6.7	
/inyl chloride	0.95	J

DILUTION FACTOR = 1.0

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

**SAMPLE DATE 11/15/91** 

SAMPLE NO. MW-1

ANALYSIS DATE 11/18/91

COMPOUND (Units of Measure = UG/L )	RESULT	Q
m-Xylene o/p-Xylene *	5.0 5.0	ט

DILUTION FACTOR = 1.0 CHROMATOGRAPHICALLY ORTHO-XYLENE AND PARA-XYLENE COELUTE.

# RADIAN CORPORATION AQUEOUS MATRIX METHOD 624 - PRIORITY POLLUTANT VOLATILE ORGANICS

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

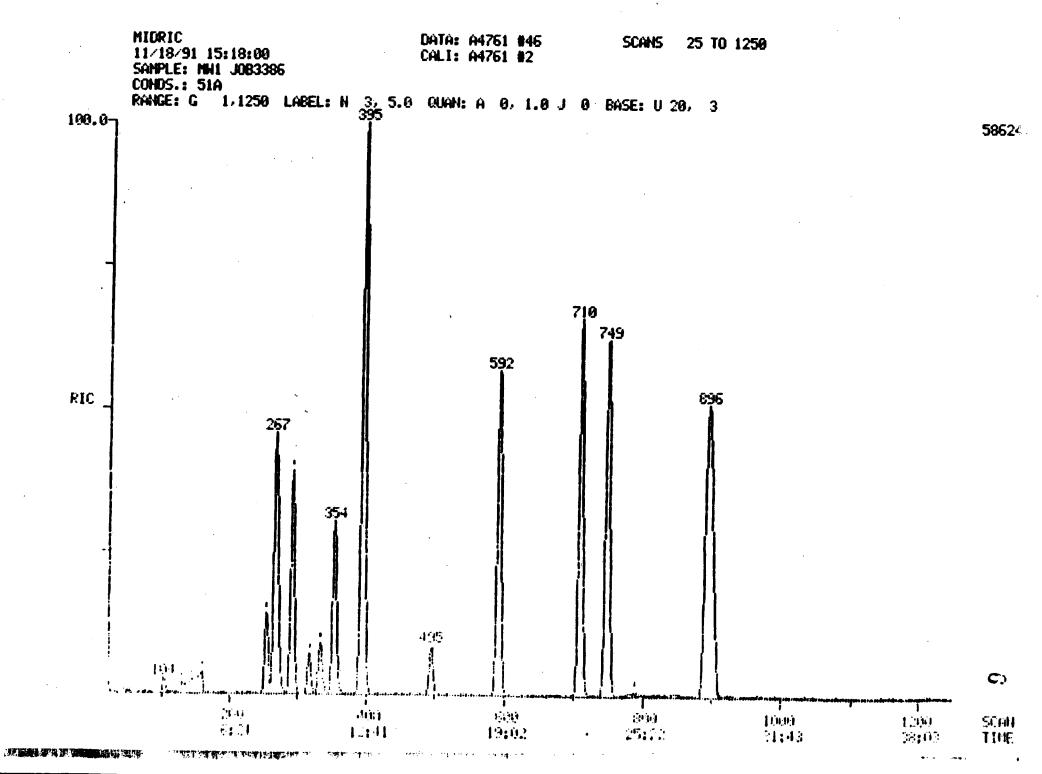
SAMPLE DATE 11/15/91

Ü

SAMPLE NO. MW-1

ANALYSIS DATE 11/18/

COMPOUND	RESULT	Q	
Internal Standards		+-	┥-
(*Recovery) Bromochloromethane 1,4-Difluorobenzene Chlorobenzene-D5 Surrogates	91 92 95		
(*Recovery) p-Bromofluorobenzene 1,2-Dichloroethane-D4 Toluene-D8	99 96 97		



## GAS CHROMATOGRAPHY/MASS SPECTROMETRY VOLATILE LIBRARY COMPARISON SEARCH

SAMPLE I.D.:MW-1

JOB#:91-3386.12

FILE: A4761

SCAN #	COMPOUND NAME	ESTIMATED CONCENTRATION (UNITS= UG/L)

RECRA ENVIRONMENTAL INC. LAB NAME

JOB NO. 91-3386

DESC MW-1 FIELD DUP SAMPLE NO. FIELD DUP

SAMPLE DATE 11/15/91

ANALYSIS DATE 11/18/91

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Acrolein	100	U
Acrylonitrile	100	Ü
Benzene	5.0	Ŭ
Bromodichloromethane	5.0	Ŭ
Bromoform	5.0	מממ
Bromomethane	10	U
Carbon Tetrachloride	5.0	U
Chlorobenzene	5.0	J J
Chlorodibromomethane Chloroethane	5.0	U
2-Chloroethylvinyl ether	7.3	J
Chloroform	10	U
Chloromethane	7.8	-
1,1-Dichloroethane	10	ש
1,2-Dichloroethane	51	1
1,1-Dichloroethene	5.0	ט
trans-1,2-Dichloroethene	17	
1,2-Dichloropropane	9.0	
Cis-1,3-Dichloropropene	5.0	ā
trans-1,3-Dichloropropene	5.0 5.0	ם
<b>Sthylbenzene</b>	5.0	ğ
Methylene chloride	5.0	Ö
<b>Tetrachloroethene</b>	5.0	ä
1,1,2,2-Tetrachloroethane	5.0	Ö
Toluene .	5.0	Ü
1,1,1-Trichloroethane	85	
1,1,2-Trichloroethane	5.0	U
Trichloroethene	6.6	١
Vinyl chloride	10	U

DILUTION FACTOR = 1.0

#### RADIAN CORPORATION ADDITIONAL VOLATILE ORGANICS

LAB NAME JOB NO.

RECRA ENVIRONMENTAL INC.

91-3386

DESC

MW-1 FIELD DUP

SAMPLE NO. FIELD DUP

SAMPLE DATE 11/15/91

ANALYSIS DATE 11/18,21

COMPOUND (Units of Measure = UG/L )	RESULT	Q	- -
m-Xylene o/p-Xylene *	5.0 5.0	ם ח	-

DILUTION FACTOR = 1.0 CHROMATOGRAPHICALLY ORTHO-XYLENE AND PARA-XYLENE COELUTE.

## -0

## RADIAN CORPORALION AQUEOUS MATRIX METHOD 624 - PRIORITY POLLUTANT VOLATILE ORGANICS

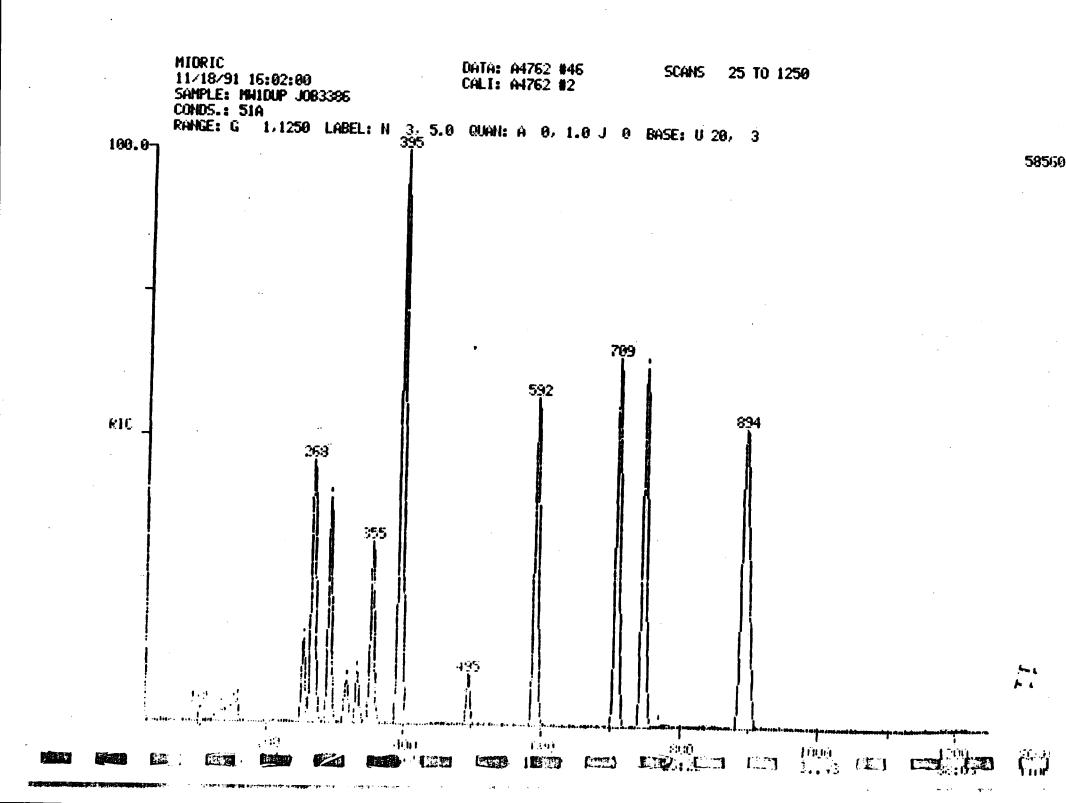
B NAME RECRA ENVIRONMENTAL INC.
B NO. 91-3386
SC MW-1 FIELD DUP
MPLE NO. FIELD DUP

SAMPLE DATE 11/15/91

ANALYSIS DATE 11/18/91

	RESULT	Q
COMPOUND		
Internal Standards		
(*Recovery) Bromochloromethane 1,4-Difluorobenzene Chlorobenzene-D5	91 92 94	
Surrogates		
(tRecovery) p-Bromofluorobenzene 1,2-Dichloroethane-D4 Toluene-D8	97 99 98	

115



## GAS CHROMATOGRAPHY/MASS SPECTROMETRY VOLATILE LIBRARY COMPARISON SEARCH

SAMPLE I.D.:MW-1 FIELD DUP

JOB#:91-3386.11

FILB: A4762

SCAN #	COMPOUND NAME	ESTIMATED CONCENTRATION (UNITS= UG/L)

LAB NAME JOB NO.

RECRA ENVIRONMENTAL INC.

91-3386

SAMPLE NO. MW-2

SAMPLE DATE 11/15/51

ANALYSIS DATE 11/18/51

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Acrolein	100	U
Acrylonitrile	100	ŭ
Benzene	5.0	Ŭ
Bromodichloromethane	5.0	บั
Bromoform	5.0	۱ŭ
Bromomethane	10	ΙŪ
Carbon Tetrachloride Chlorobenzene	5.0	Ū
Chlorodibromomethane	5.0	ט
Chloroethane	5.0	ט
2-Chloroethylvinyl ether	15	ı
Chloroform	10	ט
Chloromethane	0.67	J-
1,1-Dichloroethane	_ 10	ט
1,2-Dichloroethane	210	J*
1,1-Dichloroethene	5.0	ū
trans-1.2-Dichloroethene	460	<u>J</u> *
l.2-Dichloropropane	1.5	J
-18-1,3-Dichioropropene	5.0	ā
trans-1,3-Dichloropropene	5.0	Ü
Sthylbenzene	5.0 5.0	U
Methylene chloride	5.0	12
[etrachloroethene	3.8	J
1,1,2,2-Tetrachloroethane	5.0	ğ
Toluene	5.0	ŭ
,1,1-Trichloroethane	13,000	1.
1,1,2-Trichloroethane	5.0	U
Crichloroethene	7.2	١
/inyl chloride	1.6	J

DILUTION FACTOR = 1.0 \*DILUTION FACTOR = 100

LAB NAME

RECRA ENVIRONMENTAL INC. 91-3386

JOB NO.

SAMPLE NO. MW-2

SAMPLE DATE 11/15/91

ANALYSIS DATE 11/18/91

COMPOUND (Units of Measure = UG/L )	RESULT	Q
m-Xylene o/p-Xylene *	5.0 1.5	J J

DILUTION FACTOR = 1.0 CHROMATOGRAPHICALLY ORTHO-XYLENE AND PARA-XYLENE COELUTE. THE REPORTED VALUE IS, THEREFORE, AN "AND/OR" VALUE.

LAB NAME JOB NO.

RECRA ENVIRONMENTAL INC.

91-3386

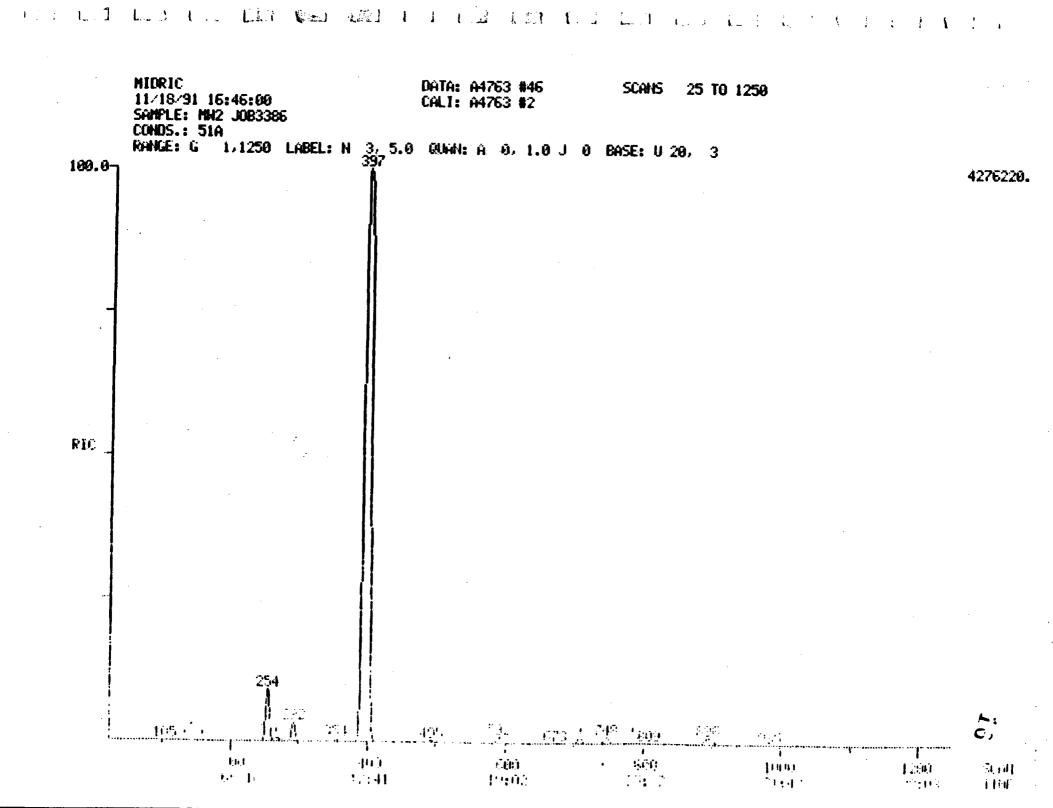
SAMPLE NO. MW-2

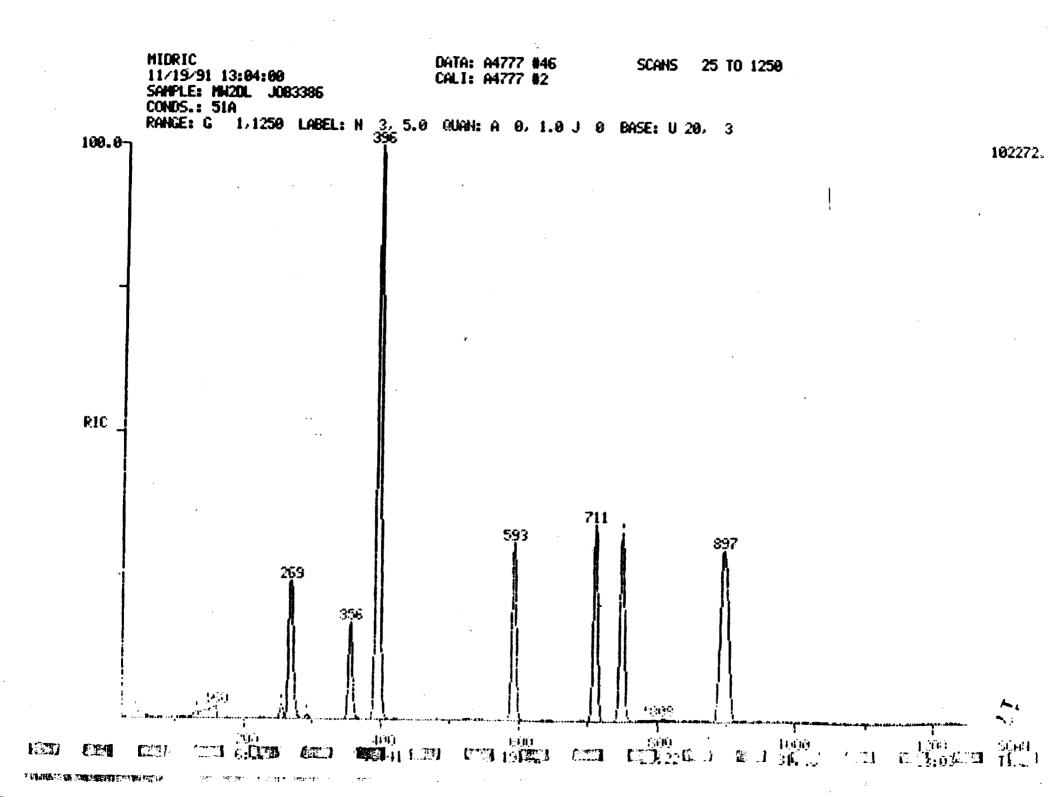
SAMPLE DATE 11/15/9

ANALYSIS DATE 11/18/91

COMPOUND	RESULT	Q
Internal Standards		
(*Recovery) Bromochloromethane 1,4-Difluorobenzene Chlorobenzene-D5 Surrogates	95 142 132	
(*Recovery) p-Bromofluorobenzene 1,2-Dichloroethane-D4 Toluene-D8	117 101 95	**

<sup>\*\*</sup>SURROGATE RECOVERY OUTSIDE OF QUALITY CONTROL LIMITS.





## GAS CHROMATOGRAPHY/MASS SPECTROMETRY VOLATILE LIBRARY COMPARISON SEARCH

SAMPLE I.D.:MW-2

JOB#:91-3386.1 FILB:A4763/A4777

scan #	COMPOUND NAME	ESTIMATED CONCENTRATION (UNITS= UG/L)

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE NO. MW-3

SAMPLE DATE 11/15/-1 ANALYSIS DATE 11/19/91

COMPOUND (Units of Measure = UG/L RESULT Q Acrolein 100 U Acrylonitrile 100 U Benzene 13 Bromodichloromethane 5.0 U Bromoform 5.0 U Bromomethane 10 U Carbon Tetrachloride 5.0 U Chlorobenzene 5.0 Ū Chlorodibromomethane 5.0 U Chloroethane 5.7 J 2-Chloroethylvinyl ether 10 U Chloroform 0.96 J Chloromethane 10 U 1,1-Dichloroethane 110 1,2-Dichloroethane 5.0 U 1,1-Dichloroethene 100 trans-1,2-Dichloroethene 5.0 U 1,2-Dichloropropane Cis-1,3-Dichloropropene 5.0 U 5.0 U trans-1,3-Dichloropropene Ū 5.0 Ethylbenzene

DILUTION FACTOR = 1.0 \*DILUTION FACTOR = 5.0

Trichloroethene

Vinyl chloride

Methylene chloride

1,1,1-Trichloroethane

1,1,2-Trichloroethane

1,1,2,2-Tetrachloroethane

Tetrachloroethene

Toluene

115

5.0

5.0

5.0

5.0

5.0

1.8

0.64

500

110

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LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE DATE 11/15/91

SAMPLE NO. MW-3

ANALYSIS DATE 11/19/91

COMPOUND (Units of Measure = UG/L )	RESULT	Q
m-Xylene o/p-Xylene *	5.0 5.0	ט

DILUTION FACTOR = 1.0 CHROMATOGRAPHICALLY ORTHO-XYLENE AND PARA-XYLENE COELUTE.

LAB NAME JOB NO.

RECRA ENVIRONMENTAL INC.

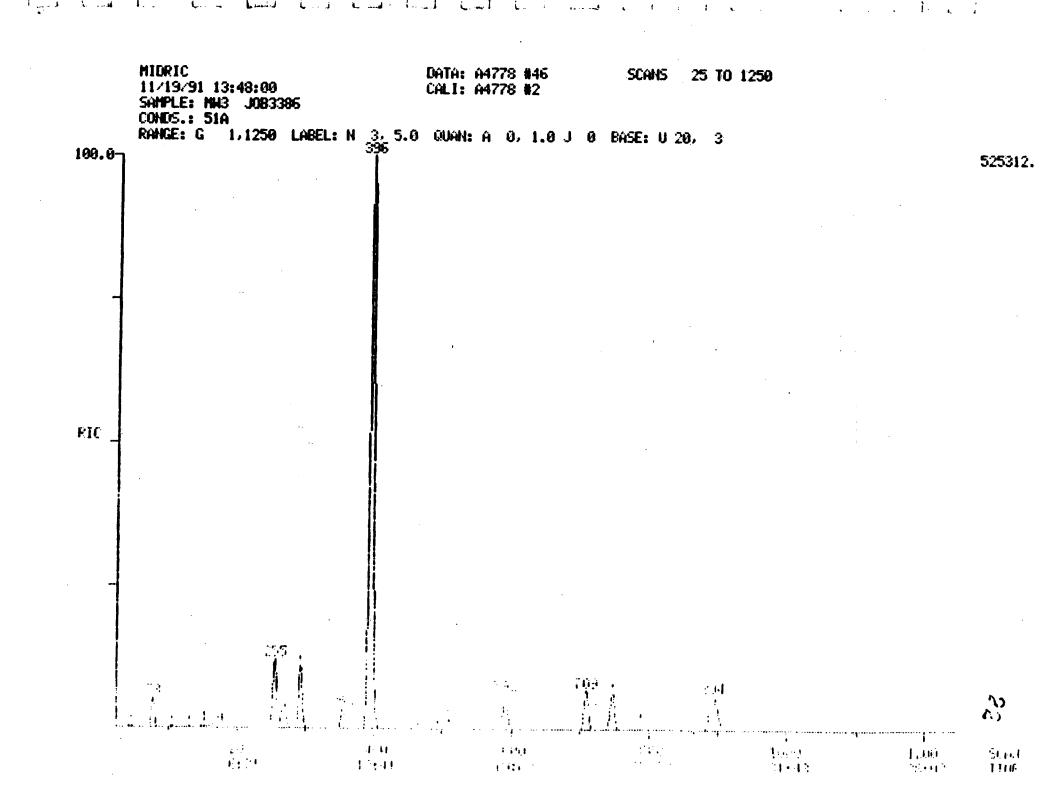
91-3386

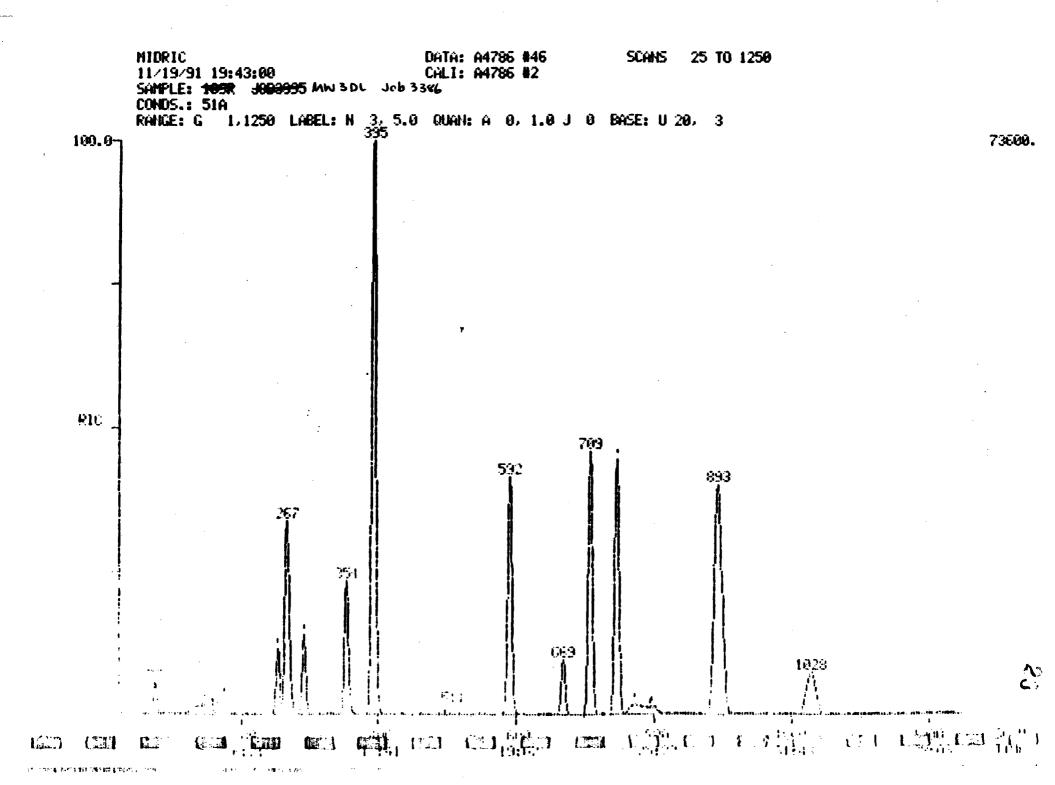
SAMPLE NO. MW-3

SAMPLE DATE 11/15/91

ANALYSIS DATE 11/19/92

COMPOUND	RESULT	Q
Internal Standards		+
(†Recovery) Bromochloromethane 1,4-Difluorobenzene Chlorobenzene-D5 Surrogates	101 94 95	
(*Recovery) p-Bromofluorobenzene 1,2-Dichloroethane-D4 Toluene-D8	99 95 99	-





## GAS CHROMATOGRAPHY/MASS SPECTROMETRY VOLATILE LIBRARY COMPARISON SEARCH

SAMPLE I.D.:MW-3/DL

JOB#:91-3386.4

FILE: A4778 & A4786

SCAN #	COMPOUND NAME	ESTIMATED CONCENTRATION (UNITS= UG/L)
1028	HEXACHLOROBUTADIENE	90

\*Tic found in dilution of sample MW-3.

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE NO. MW-4

SAMPLE DATE 11/15/91

ANALYSIS DATE 11/19/51

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Acrolein Acrylonitrile	100	U
Benzene	100	ט
Bromodichloromethane	5.0	ū
Bromoform	5.0	ū
Bromomethane	5.0 10	מ
Carbon Tetrachloride	5.0	ä
Chlorobenzene	5.0	ŭ
Chlorodibromomethane Chloroethane	5.0	Ŭ
2-Chloroethylvinyl ether	10	Ŭ
Chloroform	10	Ū
Chloromethane	5.0	ט -
1,1-Dichloroethane	10	ט
1,2-Dichloroethane	17	
1,1-Dichloroethene	5.0	שַ
trans-1,2-Dichloroethene	2.1 5.0	J
1,2-Dichloropropane	5.0	ğ
Cis-1,3-Dichloropropene	5.0	ğ
trans-1,3-Dichloropropene Ethylbenzene	5.0	ŭ
Methylene chloride	5.0	Ŭ
Tetrachloroethene	5.0	ט
1,1,2,2-Tetrachloroethane	5.0	U
roluene -	5.0	ט
1,1,1-Trichloroethane	5.0	ט
L,1,2-Trichloroethane	5.5	1
Trichloroethene	5.0 5.0	ָט ט
/inyl chloride	2.0	13

DILUTION FACTOR = 1.0

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

37-3300

SAMPLE NO. MW-4

SAMPLE DATE 11/15/91

ANALYSIS DATE 11/19/91

COMPOUND (Units of Measure = UG/L )	RESULT	Q
m-Xylene o/p-Xylene *	5.0 5.0	מ

DILUTION FACTOR = 1.0 CHROMATOGRAPHICALLY ORTHO-XYLENE AND PARA-XYLENE COELUTE.

LAB NAME JOB NO.

RECRA ENVIRONMENTAL INC.

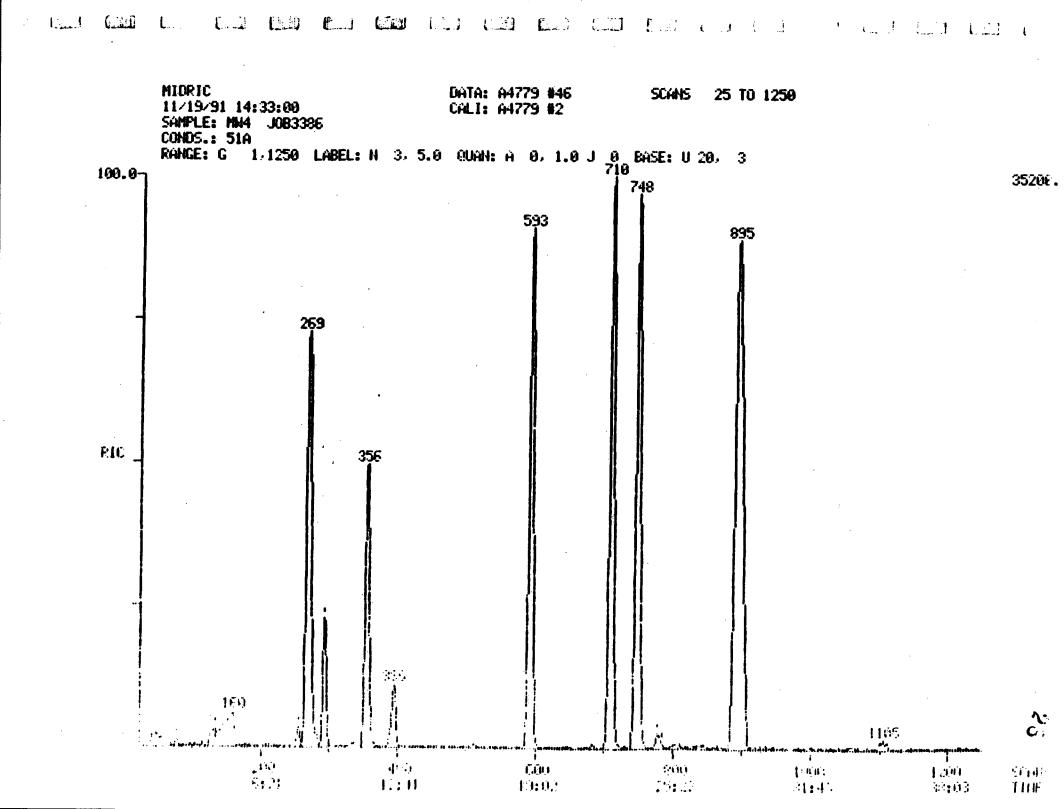
91-3386

SAMPLE DATE 11/15/71

SAMPLE NO. MW-4

ANALYSIS DATE 11/19/91

COMPOUND	RESULT	Q	٦
Internal Standards		<del>- -</del> -	┥
(tRecovery)			
Bromochloromethane 1,4-Difluorobenzene	98		
Chlorobenzene-D5	90 90	1	
Surrogates			
(*Recovery)			
p-Bromofluorobenzene 1,2-Dichloroethane-D4	104		
Toluene-D8	96 101	-	\$



## GAS CHROMATOGRAPHY/MASS SPECTROMETRY VOLATILE LIBRARY COMPARISON SEARCH

SAMPLE I.D.:MW-4

JOB#:91-3386.6

FILE: A4779

SCAN #	COMPOUND NAME	ESTIMATED CONCENTRATION (UNITS= UG/L)

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE NO. MW-5

SAMPLE DATE 11/15/91

ANALYSIS DATE 11/19/91

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Acrolein Acrylonitrile	100	Ū
Benzene	100	U
Bromodichloromethane	5.0	U
Bromoform	5.0	ַ
Bromomethane	5.0	מ
Carbon Tetrachloride	10	ַ
Chlorobenzene	5.0	שׁ
Chlorodibromomethane	5.0	15
Chloroethane	10.0	15
2-Chloroethylvinyl ether	10	מממ
Chloroform	5.0	<del>0</del> -
Chloromethane	10	۱ŭ
1,1-Dichloroethane	5.0	ממממ
1,2-Dichloroethane	5.0	Ιŭ
1,1-Dichloroethene	5.0	ΙŬ
trans-1,2-Dichloroethene	5.0	Ū
1,2-Dichloropropane	5.0	ממ
Cis-1,3-Dichloropropene	5.0	U
trans-1,3-Dichloropropene Ethylbenzene	5.0	ט
Methylene chloride	5.0	מ
Tetrachloroethene	5.0	U
1,1,2,2-Tetrachloroethane	5.0	Ü
Foluene	5.0	U
1,1,1-Trichloroethane	5.0	Ü
1,1,2-Trichloroethane	5.0	Ū
Prichloroethene	5.0	U
Vinyl chloride	5.0	U

DILUTION FACTOR = 1.0

#### RADIAN CORPORATION ADDITIONAL VOLATILE ORGANICS

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE DATE 11/15/91

SAMPLE NO. MW-5

ANALYSIS DATE 11/19/J

COMPOUND (Units of Measure = UG/L )	RESULT	Q	]-
m-Xylene o/p-Xylene *	5.0 5.0	Ü	

DILUTION FACTOR = 1.0 CHROMATOGRAPHICALLY ORTHO-XYLENE AND PARA-XYLENE COELUTE.

LAB NAME JOB NO.

RECRA ENVIRONMENTAL INC.

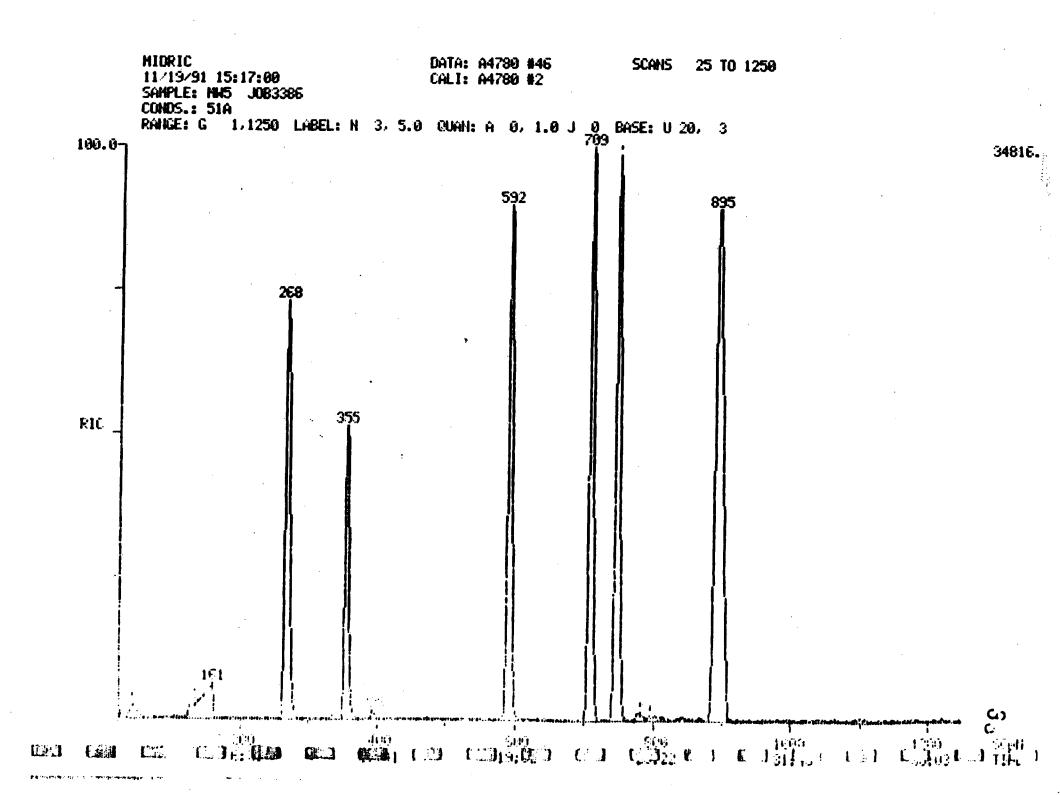
91-3386

SAMPLE DATE 11/15/91

SAMPLE NO. MW-5

ANALYSIS DATE 11/19/91

COMPOUND	RESULT	Q
Internal Standards		
(*Recovery) Bromochloromethane 1,4-Difluorobenzene Chlorobenzene-D5 Surrogates	94 91 91	٠
(*Recovery) p-Bromofluorobenzene 1,2-Dichloroethane-D4 Toluene-D8	106 101 99	-



## GAS CHROMATOGRAPHY MASS SPECTROMETRY VOLATILE LIBRARY COMPARISON SEARCH

SAMPLE I.D.:MW-5

JOB#:91-3386.5

FILE: A4780

SCAN #	COMPOUND NAME	ESTIMATED CONCENTRATION (UNITS= UG/L)
-		

## The way of the control of the AQUBOUS MATRIX METHOD 624 - PRIORITY POLLUTANT VOLATILE ORGANICS

LAB NAME JOB NO.

RECRA ENVIRONMENTAL INC.

91-3386

SAMPLE NO. MW-6

SAMPLE DATE 11/15/91

ANALYSIS DATE 11/18/5

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Acrolein	100	U
Acrylonitrile	100	Ü
Benzene	5.0	Ŭ
Bromodichloromethane	3.1	IJ
Bromoform	5.0	טו
Bromomethane	10	ט
Carbon Tetrachloride Chlorobenzene	5.0	שׁ
Chlorodibromomethane	5.0	IJ
Chloroethane	0.61	
2-Chloroethylvinyl ether	10	U
Chloroform	10	ט
Chloromethane	12	-
1,1-Dichloroethane	5.0	מ
1,2-Dichloroethane	5.0	ğ
l,1-Dichloroethene	5.0	ğ
trans-1,2-Dichloroethene	5.0	ŭ
1,2-Dichloropropane	5.0	Ö
Cis-1,3-Dichloropropene	5.0	Ŭ
trans-1,3-Dichloropropene	5.0	Ü
Ethylbenzene	5.0	ΙŬ
Methylene chloride	5.0	Ü
Tetrachloroethene	5.0	Ŭ
1,1,2,2-Tetrachloroethane	5.0	U
Toluene	5.0	ט
1,1,1-Trichloroethane	13	1
l,1,2-Trichloroethane Trichloroethene	5.0	U
ingl chloride	5.0	ש
THIS CHIOTIGE	10	[ט

DILUTION FACTOR = 1.0

LAB NAME JOB NO.

RECRA ENVIRONMENTAL INC.

91-3386

SAMPLE DATE 11/15/91

SAMPLE NO. MW-6

ANALYSIS DATE 11/18/91

COMPOUND (Units of Measure = UG/L )	RESULT	Q
m-Xylene o/p-Xylene *	5.0 5.0	מ

DILUTION FACTOR = 1.0 CHROMATOGRAPHICALLY ORTHO-XYLENE AND PARA-XYLENE COELUTE.

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

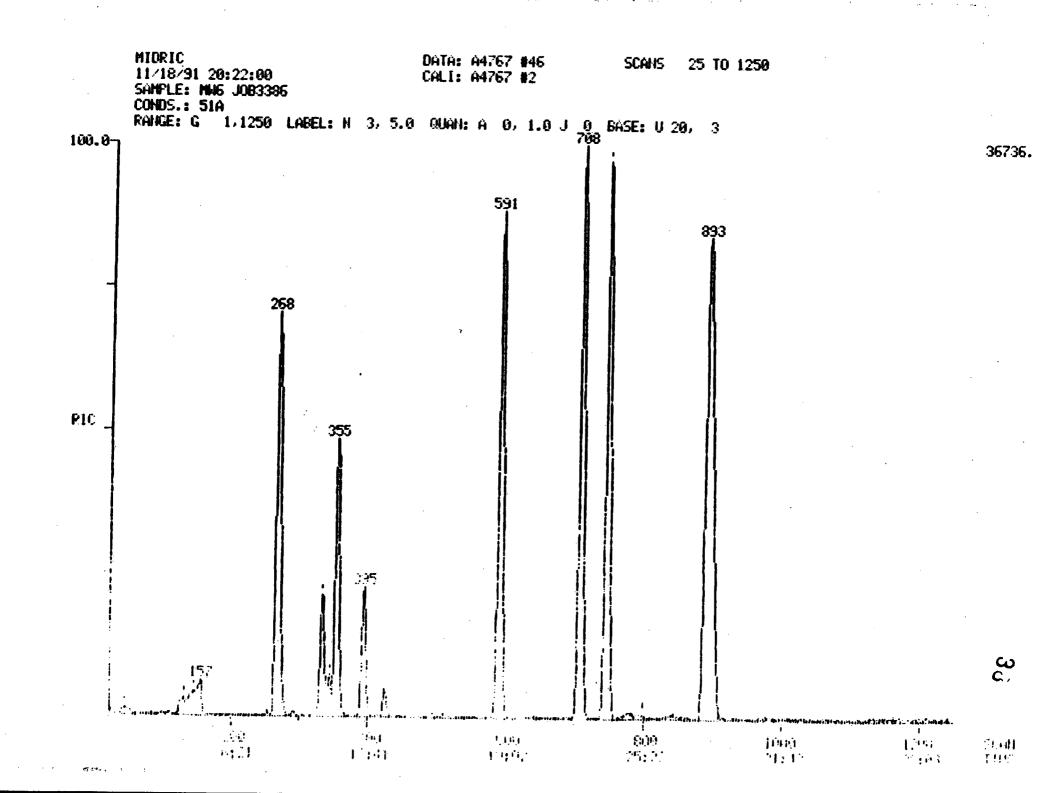
91-3386

SAMPLE DATE 11/15/9~

SAMPLE NO. MW-6

ANALYSIS DATE 11/18/91

COMPOUND	RESULT	Q
Internal Standards		
(*Recovery) Bromochloromethane 1,4-Difluorobenzene Chlorobenzene-D5 Surrogates	92 91 90	
(*Recovery) p-Bromofluorobenzene 1,2-Dichloroethane-D4 Toluene-D8	100 94 99	-



## GAS CHROMATOGRAPHY/MASS SPECTROMETRY VOLATILE LIBRARY COMPARISON SEARCH

SAMPLE I.D.:MW-6

JOB#:91-3386.10

FILE: A4767

SCAN #	COMPOUND NAME	ESTIMATED CONCENTRATION (UNITS= UG/L)
344	1,1,2=TRIMETHYL- 1,2,2- TRIFLUOROETHANE (76-13-1)	4.3

LAB NAME

RECRA ENVIRONMENTAL INC. 91-3386

JOB NO. 91-338

**SAMPLE DATE 11/15/91** 

SAMPLE NO. MW-7

ANALYSIS DATE 11/18/91

COMPOUND (Units of Measure = UG/L )   RESULT   Q		·	
Acrolein Acrylonitrile Benzene Bromodichloromethane Bromomethane Bromomethane Carbon Tetrachloride Chlorobenzene Chlorodibromomethane Chloroethane C-Chloroethylvinyl ether Chloroform Chloroform Chloroform Chloromethane Chloromethane Chloromethane Chloroethane Chloromethane Chloromethane Chloromethane Chloromethane Chloromethane Chloromethane Chloromethane Chloromethane Chloromethane Chloromethane Chloromethane Chloromethane Chloromethane Chloromethane Chloromethane Chloromethane Chloromethane Chloromethane Chloromethane Chloromethane Chloromethane Chloromethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chloropethane Chlorope	COMPOUND (Units of Measure = UG/L )	RESULT	0
Methylene chloride Tetrachloroethene 1.1.2.3. Motors oblant and the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the st	(Units of Measure = UG/L )  Acrolein Acrylonitrile Benzene Bromodichloromethane Bromomethane Carbon Tetrachloride Chlorobenzene Chlorodibromomethane Chloroethane 2-Chloroethylvinyl ether Chloroform Chloromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethene trans-1,2-Dichloroethene trans-1,3-Dichloropropene trans-1,3-Dichloropropene Ethylbenzene Methylene chloride	100 100 5.0 5.0 5.0 5.0 5.0 5.0 1.2 10 0.98 10 57 5.0 460 0.69 5.0 5.0 5.0	ר +ם מנמניםממממממממ

DILUTION FACTOR = 1.0 \*DILUTION FACTOR = 50

## RADIAN CORPORATION ADDITIONAL VOLATILE ORGANICS

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE DATE 11/15/91

SAMPLE NO. MW-7

ANALYSIS DATE 11/18/51

COMPOUND (Units of Measure = UG/L )	RESULT	Q	
m-Xylene *	5.0 5.0	ŭ	

DILUTION FACTOR = 1.0 CHROMATOGRAPHICALLY ORTHO-XYLENE AND PARA-XYLENE COELUTE.

LAB NAME JOB NO.

RECRA ENVIRONMENTAL INC.

91-3386

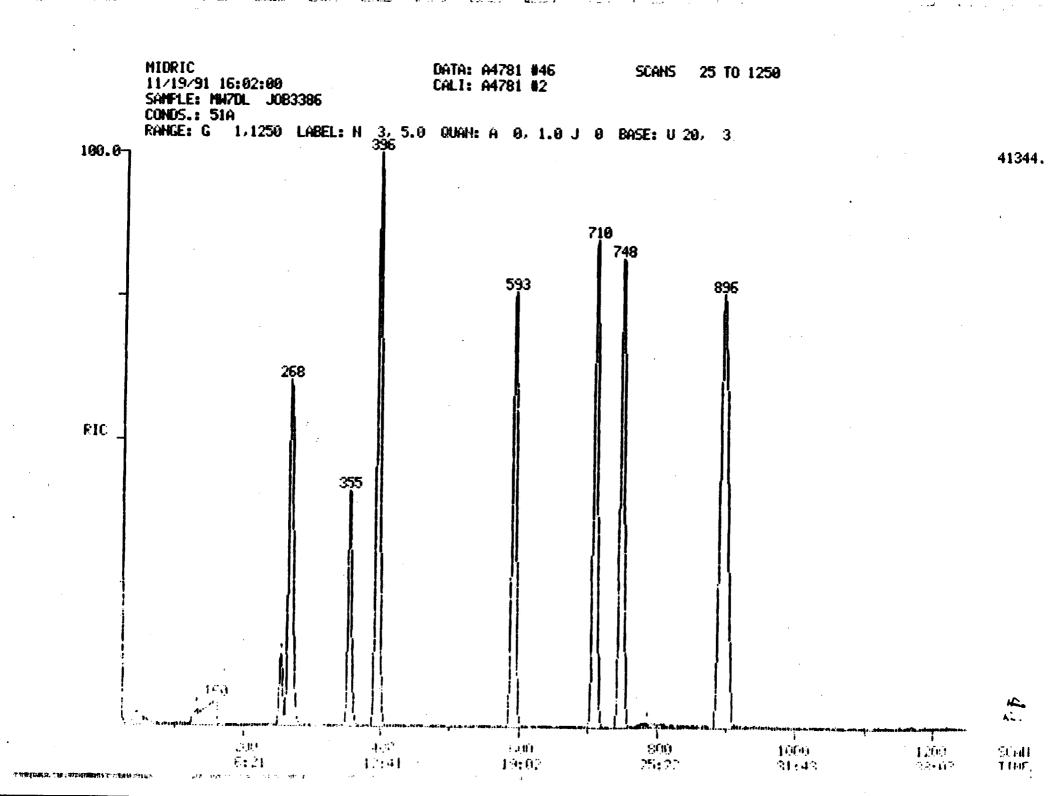
SAMPLE DATE 11/15/91

SAMPLE NO. MW-7

ANALYSIS DATE 11/18/91

COMPOUND	RESULT	Q
Internal Standards		+-
(*Recovery) Bromochloromethane 1,4-Difluorobenzene Chlorobenzene-D5 Surrogates	94 92 91	
(*Recovery) p-Bromofluorobenzene 1,2-Dichloroethane-D4 Toluene-D8	99 99 99	-

DATA: A4768 #46 CALI: A4768 #2 SCAHS MIDRIC 25 TO 1250 11/18/91 21:06:00 **SAMPLE: 1447 J083386** CONDS.: 51A 1,1250 LABEL: N 3, 5.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3 RANGE: G 100.07 **200089**0 PIC end con the confidence of the



## GAS CHROMATOGRAPHY/MASS SPECTROMETRY VOLATILE LIBRARY COMPARISON SEARCH

SAMPLE I.D.:MW-7

JOB#:91-3386.7 FILE:A4768/A4781

SCAN #	COMPOUND NAME	ESTIMATED CONCENTRATION (UNITS= UG/L)

### BADYAL CHAPARAMAN AQUEOUS MATRIX METHOD 624 - PRIORITY POLLUTANT VOLATILE URGANICS

LAB NAME JOB NO. RECRA ENVIRONMENTAL INC.

91-3386

SAMPLE NO. MW-8

SAMPLE DATE 11/15/91

ANALYSIS DATE 11/18/91

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Acrolein	100	U
Acrylonitrile	100	Ū
Benzene	5.0	<b>ט</b>
Bromodichloromethane	5.0	U
Bromoform	5.0	U
Bromomethane	10	ט
Carbon Tetrachloride	5.0	ש
Chlorobenzene Chlorodibromomethane	5.0	ט
Chloroethane	5.0	U
2-Chloroethylvinyl ether	10	U
Chloroform	10	ū
Chloromethane	5.0	<u>u</u> -
1,1-Dichloroethane	10	ַ ט
1,2-Dichloroethane	8.6	-
1,1-Dichloroethene	5.0 46	ט
trans-1,2-Dichloroethene	5.0	Ū
1.2-Dichloropropane	5.0	ğ
Cis-1,3-Dichloropropene	5.0	١٥
trans-1,3-Dichloropropene	5.0	ŭ
Ethylbenzene	5.0	Ŭ
Methylene chloride	5.0	Ü
Tetrachloroethene	5.0	Ü
1,1,2,2-Tetrachloroethane	5.0	Ŭ
Toluene	5.0	$\ddot{\mathbf{v}}$
1,1,1-Trichloroethane	370	*
1,1,2-Trichloroethane	5.0	U
Trichloroethene	5.0	<b>ט</b>
Vinyl chloride	10	Ū

DILUTION FACTOR = 1.0 \*DILUTION FACTOR = 4.0

### RADIAN CORPORATION ADDITIONAL VOLATILE ORGANICS

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE DATE 11/15/91

SAMPLE NO. MW-8

ANALYSIS DATE 11/18/51

COMPOUND (Units of Measure = UG/L )	RESULT	Q	֧֓֟֟֟֟֟֟֟֟֟֟֟ ֓֓֓֞֓֓֓֞֓֓֓֓֞֓֓֓֞֓֓֓֓֞֓֓֞֓֓֓֞֓
m-Xylene o/p-Xylene *	5.0 5.0	U	

DILUTION FACTOR = 1.0 CHROMATOGRAPHICALLY ORTHO-XYLENE AND PARA-XYLENE COELUTE.

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

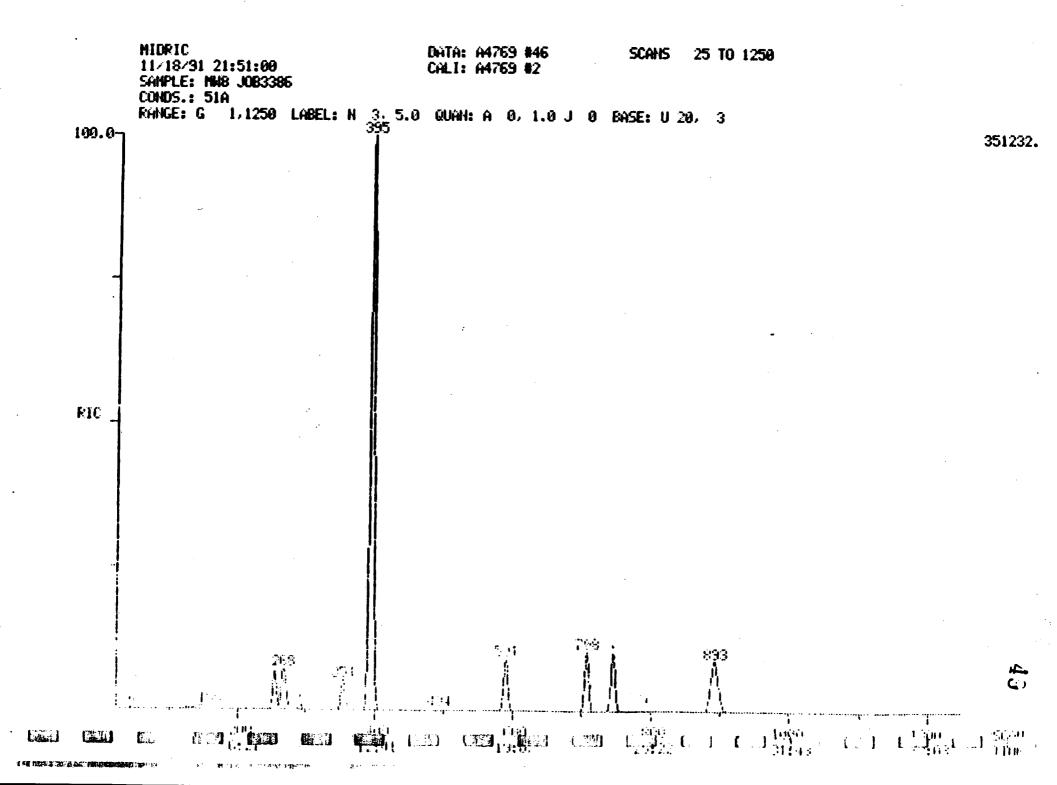
91-3386

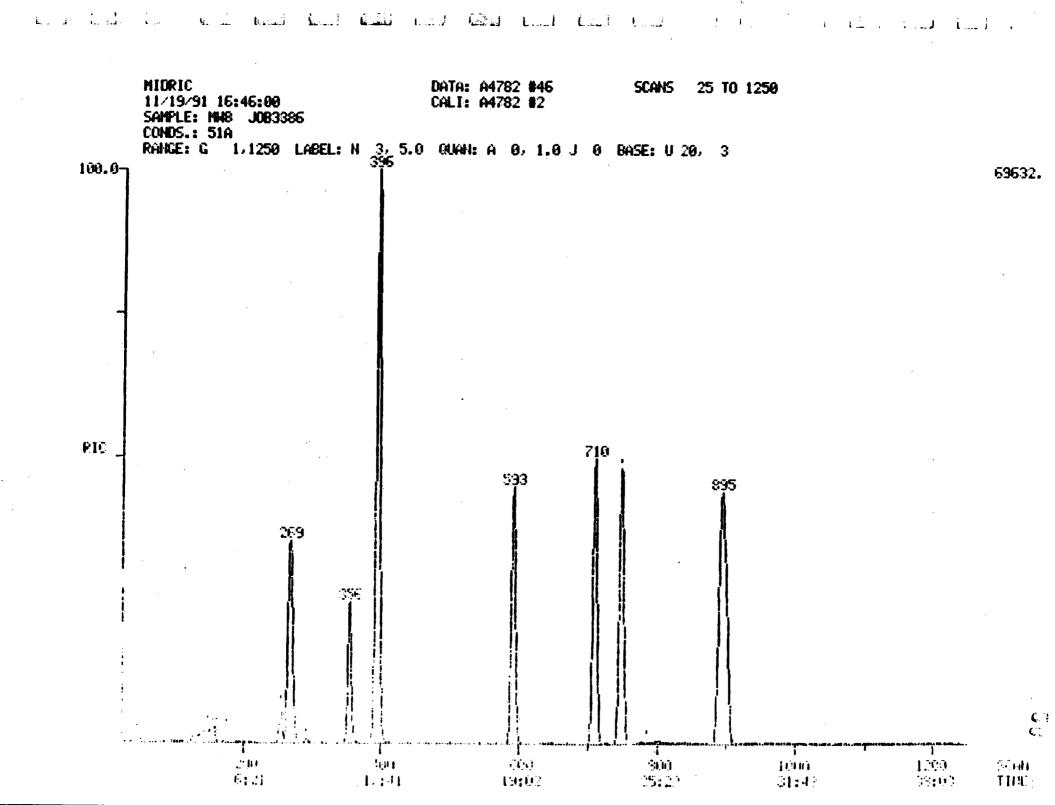
**SAMPLE DATE 11/15/91** 

SAMPLE NO. MW-8

ANALYSIS DATE 11/18/91

COMPOUND	RESULT	Q
Internal Standards		
(*Recovery) Bromochloromethane 1,4-Difluorobenzene Chlorobenzene-D5 Surrogates	92 89 89	
(*Recovery) p-Bromofluorobenzene 1,2-Dichloroethane-D4 Toluene-D8	102 95 97	-





## GAS CHROMATOGRAPHY/MASS SPECTROMETRY VOLATILE LIBRARY COMPARISON SEARCH

SAMPLE I.D.:MW-8

JOB#:91-3386.2 FILE:A4769/A4782

SCAN #	COMPOUND NAME	ESTIMATED CONCENTRATION (UNITS= UG/L)

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

**SAMPLE DATE 11/15/91** 

SAMPLE NO. MW-9

ANALYSIS DATE 11/18/91

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Acrolein	100	U
Acrylonitrile	100	Ü
Benzene	5.0	Ü
Bromodichloromethane	5.0	177
Bromoform	5.0	מט
Bromomethane	10	117
Carbon Tetrachloride	5.0	Ŭ
Chlorobenzene	5.0	tī
Chlorodibromomethane	5.0	ם
Chloroethane	10	Ū
2-Chloroethylvinyl ether	10	Ŭ.
Chloroform	6.0	
Chloromethane	10	U
1,1-Dichloroethane	5.0	Ū
1,2-Dichloroethane	5.0	U
1,1-Dichloroethene	2.8	J
trans-1,2-Dichloroethene	4.9	ם קלים
1,2-Dichloropropane	5.0	U
Cis-1,3-Dichloropropene	5.0	U
rans-1,3-Dichloropropene Sthylbenzene	5.0	Ū
Methylene chloride	5.0	Ū
Tetrachloroethene	5.0	U
L,1,2,2-Tetrachloroethane	5.0	U
Coluene	5.0	Ü
l,1,1-Trichloroethane	5.0	U
1,1,1-Trichloroethane	6.2	l
richloroethene	5.0	ש
/inyl chloride	13	
	10	U

DILUTION FACTOR = 1.0

### RADIAN CORPORATION ADDITIONAL VOLATILE ORGANICS

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE DATE 11/15/91

SAMPLE NO. MW-9

ANALYSIS DATE 11/18/5

COMPOUND (Units of Measure = UG/L )	RESULT	Q	
m-Xylene o/p-Xylene *	5.0 5.0	מ	 

DILUTION FACTOR = 1.0 CHROMATOGRAPHICALLY ORTHO-XYLENE AND PARA-XYLENE COELUTE.

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

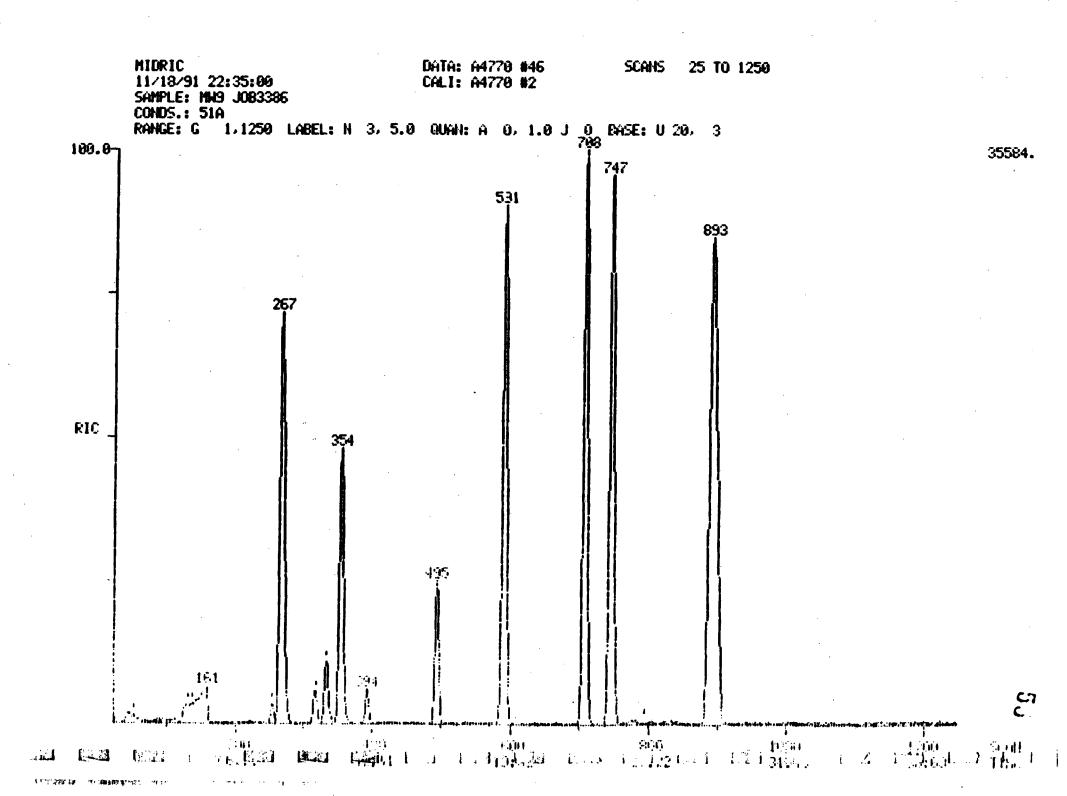
91-3386

SAMPLE DATE 11/15/91

SAMPLE NO. MW-9

ANALYSIS DATE 11/18/91

COMPOUND	RESULT	Q
Internal Standards		
(%Recovery) Bromochloromethane 1,4-Difluorobenzene Chlorobenzene-D5 Surrogates	86 86 87	
(*Recovery) p-Bromofluorobenzene 1,2-Dichloroethane-D4 Toluene-D8	101 101 98	-



### ANALYTICAL RESULTS

## GAS CHROMATOGRAPHY/MASS SPECTROMETRY VOLATILE LIBRARY COMPARISON SEARCH

SAMPLE I.D.:MW-9

JOB#:91-3386.9

FILE: A4770

SCAN #	COMPOUND NAME	ESTIMATED CONCENTRATION (UNITS= UG/L)

LAB NAME JOB NO.

RECRA ENVIRONMENTAL INC.

91-3386

SAMPLE NO. MW-10

SAMPLE DATE 11/15/91

ANALYSIS DATE 11/18/1

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Acrolein	100	U
Acrylonitrile Benzene	100	U
Bromodichloromethane	5.0	טן
Bromoform	5.0	ט
Bromomethane	5.0	ט
Carbon Tetrachloride	5.0	ğ
Chlorobenzene	5.0	Ŭ
Chlorodibromomethane Chloroethane	5.0	Ŭ
2-Chloroethylvinyl ether	10	ט
Chloroform	10	U
Chloromethane	5.0 10	<u>U_</u>
1,1-Dichloroethane	5.0	מ
1,2-Dichloroethane 1,1-Dichloroethene	5.0	Ö
trans-1,2-Dichloroethene	5.0	ט
1.2-Dichloropropage	5.0	U
C18-1.3-Dichloropropens	5.0	ט
trans-1,j-Dichloropropene	5.0	טַ
stnylbenzene	5.0 5.0	ט
Methylene chloride	5.0	ğ
Tetrachloroethene	5.0	Ŭ
1,1,2,2-Tetrachloroethane Toluene	5.0	Ŭ
1,1,1-Trichloroethane	5.0	Ŭ
1,1,2-Trichloroethane	1.1	J
Trichloroethene	5.0	ū
Vinyl chloride	5.0	Ü

DILUTION FACTOR = 1.0

115

-1

## GAS CHROMATOGRAPHY/MASS SPECTROMETRY VOLATILE LIBRARY COMPARISON SEARCH

SAMPLE I.D.:MW-9

JOB#:91-3386.9

FILE: A4770

SCAN #	COMPOUND NAME	ESTIMATED CONCENTRATION (UNITS= UG/L)

### RADIAN CORPORATION ADDITIONAL VOLATILE ORGANICS

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE DATE 11/15/91

SAMPLE NO. MW-10

ANALYSIS DATE 11/18/91

COMPOUND (Units of Measure = UG/L )	RESULT	Q
m-Xylene o/p-Xylene *	5.0 5.0	ממ

DILUTION FACTOR = 1.0 CHROMATOGRAPHICALLY ORTHO-XYLENE AND PARA-XYLENE COELUTE.

LAB NAME

RECRA ENVIRONMENTAL INC. 91-3386

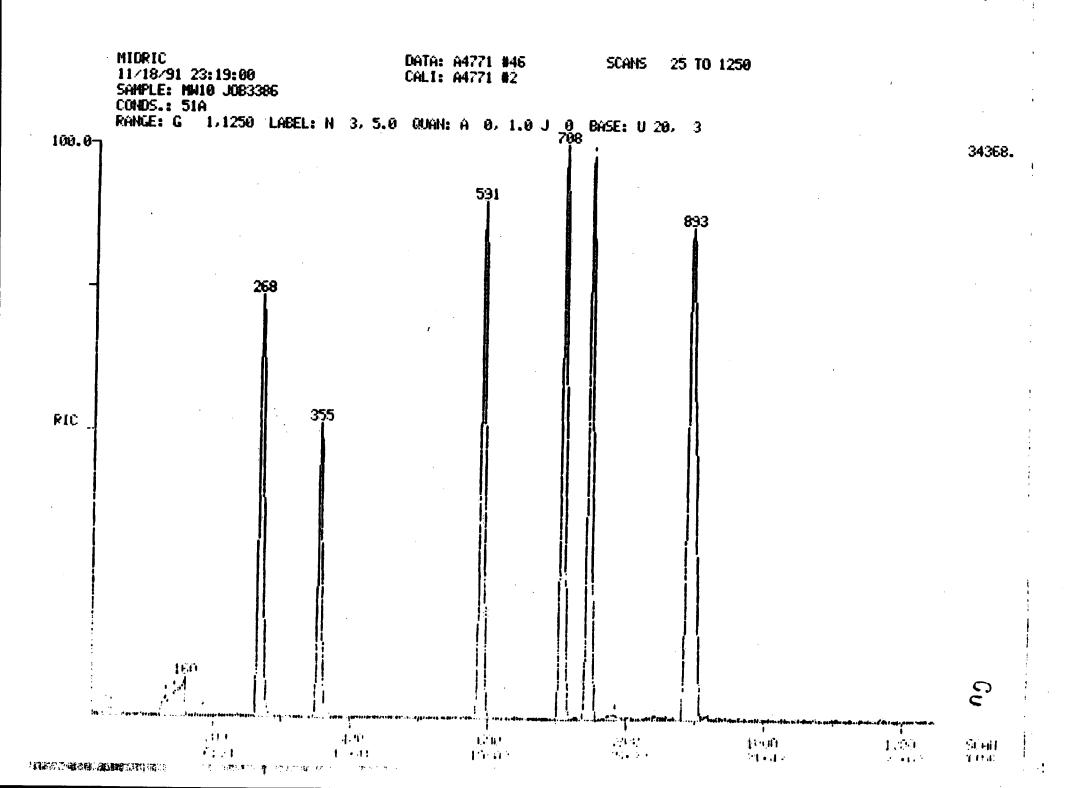
JOB NO.

SAMPLE DATE 11/15/9\*-

SAMPLE NO. MW-10

ANALYSIS DATE 11/18/97

COMPOUND	RESULT	Q
Internal Standards		<del>-   -</del>
(†Recovery) Bromochloromethane 1,4-Difluorobenzene Chlorobenzene-D5 Surrogates	88 85 86	
(trecovery) p-Bromofluorobenzene 1,2-Dichloroethane-D4 Toluene-D8	98 96 98	-



## GAS CHROMATOGRAPHY/MASS SPECTROMETRY VOLATILE LIBRARY COMPARISON SEARCH

SAMPLE I.D.:MW-10

JOB#:91-3386.8

FILE: A4771

SCAN #	COMPOUND NAME	ESTIMATED CONCENTRATION (UNITS= UG/L)
·		

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE DATE 11/15/91

SAMPLE NO. FIELD BLANK

ANALYSIS DATE 11/18/91

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Acrolein	100	U
Acrylonitrile	100	Ü
Benzene	5.0	Ū
Bromodichloromethane	5.0	ŭ
Bromoform	5.0	Ŭ
Bromomethane	10	
Carbon Tetrachloride	5.0	177
Chlorobenzene	2.9	1.7
Chlorodibromomethane	5.0	מלמם
Chloroethane	10	Ü
2-Chloroethylvinyl ether	10	ŭ-
hloroform	5.0	ŭ
Chloromethane	10	117
1,1-Dichloroethane	5.0	מ
1,2-Dichloroethane	5.0	177
1,1-Dichloroethene	5.0	מ
rans-1,2-Dichloroethene	5.0	Ö
,2-Dichloropropane	5.0	Ü
Cis-1,3-Dichloropropene	5.0	ŭ
rans-1,3-Dichloropropene	5.0	Ŭ
Sthylbenzene	5.0	177
ethylene chloride	5.0	น
'etrachloroethene	5.0	ŭ
,1,2,2-Tetrachloroethane	5.0	ŭ
oluene	5.0	ש
,1,1-Trichloroethane	5.0	Ü
,1,2-Trichloroethane	5.0	ŭ
richloroethene	5.0	ŭ
'inyl chloride	10.	Ü

DILUTION FACTOR = 1.0

#### RADIAN CORPORATION ADDITIONAL VOLATILE ORGANICS

LAB NAME JOB NO.

RECRA ENVIRONMENTAL INC. 91-3386

SAMPLE DATE 11/15/

SAMPLE NO. FIELD BLANK

ANALYSIS DATE 11/18/91

COMPOUND (Units of Measure = UG/L )	RESULT	Q	]
m-Xylene o/p-Xylene *	5.0 5.0	ŭ	-

DILUTION FACTOR = 1.0 CHROMATOGRAPHICALLY ORTHO-XYLENE AND PARA-XYLENE COELUTE.

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO. 91-3386

SAMPLE DATE 11/15/91

SAMPLE NO. FIELD BLANK

ANALYSIS DATE 11/18/91

COMPOUND	RESULT	0
Internal Standards		<del>-   -</del>
(†Recovery) Bromochloromethane 1,4-Difluorobenzene Chlorobenzene-D5 Surrogates	91 92 93	
(*Recovery) p-Bromofluorobenzene 1,2-Dichloroethane-D4 Toluene-D8	101 97 100	-

MIDRIC DATA: A4760 #46 CALI: A4760 #2 **SCANS** 25 TO 1250 11/18/91 14:34:00 SAMPLE: FIELDBLANK JOB3386 CONDS.: 51A 1,1250 LABEL: N 3, 5.0 QUAN: A 0, 1.0 J 0 BASE: U 20, 3 RANGE: G 100.07 37824. 592 RIC  $\{F_{n,j}\}$ 

THE FOREST

## GAS CHROMATOGRAPHY/MASS SPECTROMETRY VOLATILE LIBRARY COMPARISON SEARCH

SAMPLE I.D.: FIELD BLANK

JOB#:91-3386.13

FILE: A4760

SCAN #	COMPOUND NAME	ESTIMATED CONCENTRATION (UNITS= UG/L)

LAB NAME JOB NO. RECRA ENVIRONMENTAL INC.

91-3386

SAMPLE DATE 11/15/01

SAMPLE NO. TRIP BLANK

ANALYSIS DATE 11/18/31

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Acrolein	100	บ
Acrylonitrile	100	Ü
Benzene	5.0	Ŭ
Bromodichloromethane	5.0	Ū
Bromoform	5.0	Ŭ
Bromomethane	10	Ū
Carbon Tetrachloride	5.0	U
Chlorobenzene	5.0	U
Chlorodibromomethane Chloroethane	5.0	ט
2-Chloroethylvinyl ether	10	U
Chloroform	10	[ט
Chloromethane	5.0	<u>u</u> -
1,1-Dichloroethane	10	ש
1,2-Dichloroethane	5.0	Ū
1,1-Dichloroethene	5.0	טַ
rans-1,2-Dichloroethene	5.0	ŭ
L.2-Dichloropropane	5.0	Ü
Cis-1,3-Dichloropropene	5.0 5.0	ט
rans-1,3-Dichloropropene	5.0	d
Sthylbenzene	5.0	ğ
Methylene chloride	5.0	lä
Setrachloroethene	5.0	ğ
,1,2,2-Tetrachloroethane	5.0	Ŭ
Coluene	5.0	Ŭ
,1,1-Trichloroethane	5.0	Ü
,1,2-Trichloroethane	5.0	Ιΰ
richloroethene	5.0	Ŭ
/inyl chloride	10	Ü

DILUTION FACTOR = 1.0

### RADIAN CORPORATION ADDITIONAL VOLATILE ORGANICS

LAB NAME

RECRA ENVIRONMENTAL INC. 91-3386

JOB NO.

SAMPLE NO. TRIP BLANK

SAMPLE DATE 11/15/91

ANALYSIS DATE 11/18/91

COMPOUND (Units of Measure = UG/L )	RESULT	Q
m-Xylene	5.0	n
o/p-Xylene *	5.0	n

DILUTION FACTOR = 1.0 CHROMATOGRAPHICALLY ORTHO-XYLENE AND PARA-XYLENE COELUTE.

RECRA ENVIRONMENTAL INC. 91-3386

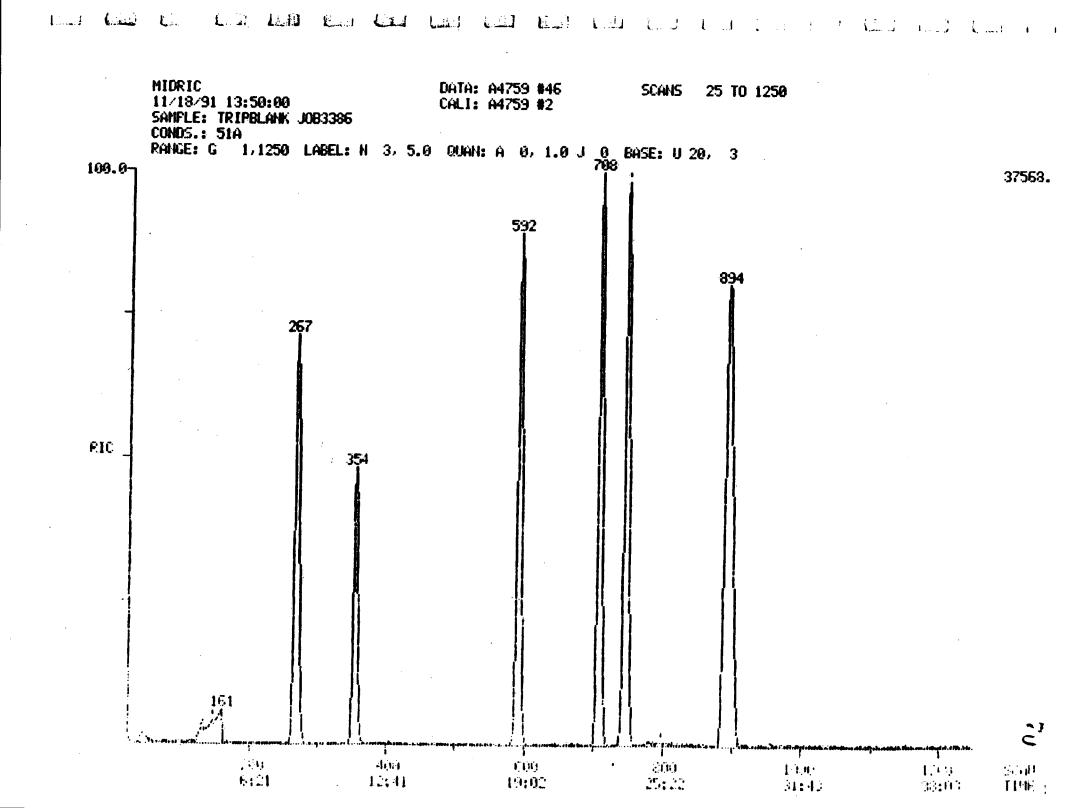
JOB NO.

SAMPLE NO. TRIP BLANK

SAMPLE DATE 11/15/91

ANALYSIS DATE 11/18/9=

COMPOUND	RESULT	Q
Internal Standards		
(*Recovery) Bromochloromethane 1,4-Difluorobenzene Chlorobenzene-D5 Surrogates	96 92 96	
(†Recovery) p-Bromofluorobenzene 1,2-Dichloroethane-D4 Toluene-D8	98 94 95	-



## GAS CHROMATOGRAPHY/MASS SPECTROMETRY VOLATILE LIBRARY COMPARISON SEARCH

SAMPLE I.D.:TRIP BLANK

JOB#:91-3386.14

FILB: A4759

SCAN #	COMPOUND NAME	ESTIMATED CONCENTRATION (UNITS= UG/L)
·		

LAB NAME JOB NO. DESC

RECRA ENVIRONMENTAL INC.

JOB NO. 91-3386
DESC VOLATILE METHOD BLANK
SAMPLE NO. VBLK53

ANALYSIS DATE 11/19/91

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Acrolein Acrylonitrile Benzene Bromodichloromethane Bromoform Bromomethane Carbon Tetrachloride Chlorobenzene Chlorodibromomethane Chlorodibromomethane Chloroethane 2-Chloroethylvinyl ether Chloroform Chloromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethene trans-1,2-Dichloropropane Cis-1,3-Dichloropropane Cis-1,3-Dichloropropene Bthylbenzene Methylene chloride Tetrachloroethene 1,1,2,2-Tetrachloroethane Toluene 1,1,1-Trichloroethane 1,1,2-Trichloroethane Trichloroethene Vinyl chloride	5.0 5.0 5.0 5.0 5.0 5.0	מממממממממממממממממממממ

DILUTION FACTOR = 1.0

#### RADIAN CORPORATION ADDITIONAL VOLATILE ORGANICS

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO. DESC

NO. 91-3386

VOLATILE METHOD BLANK

SAMPLE NO. VBLK53

ANALYSIS DATE 11/19/51

COMPOUND (Units of Measure = UG/L )	RESULT	Q	
m-Xylene o/p-Xylene *	5.0 5.0	מ	7-

DILUTION FACTOR = 1.0 CHROMATOGRAPHICALLY ORTHO-XYLENE AND PARA-XYLENE COELUTE.

130

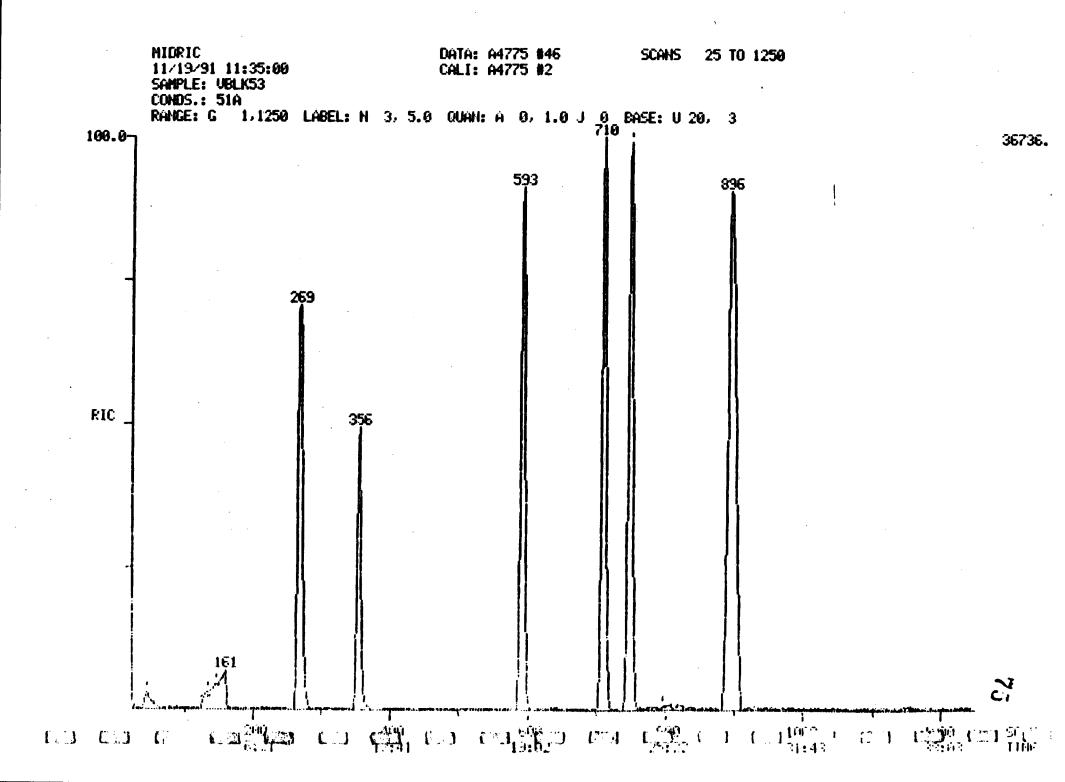
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LAB NAME RECRA ENVIRONMENTAL INC.

JOB NO. 91-3386
DESC VOLATILE METHOD BLANK
SAMPLE NO. VBLK53

ANALYSIS DATE 11/19/91

COMPOUND	RESULT	Q
Internal Standards		
(†Recovery) Bromochloromethane 1,4-Difluorobenzene Chlorobenzene-D5 Surrogates	99 95 96	
(†Recovery) p-Bromofluorobenzene 1,2-Dichloroethane-D4 Toluene-D8	102 100 98	-



### GAS CHROMATOGRAPHY/MASS SPECTROMETRY VOLATILE LIBRARY COMPARISON SEARCH

SAMPLE I.D.: VBLK 53

JOB#:91-3386.3

FILE: A4775

SCAN #	COMPOUND NAME	ESTIMATED CONCENTRATION (UNITS= UG/L)

SEMI-VOLATILE DATA

三十二年第一日を見って、日本の



ENVIRONMENTAL

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE NO. MW-1

SAMPLE DATE 11/15/51 EXTRACTION DATE 11/22/91 ANALYSIS DATE 11/30/91

COMPOUND (Units of Measure = UG/L )	RESULT	0
Indeno(1,2,3-cd)pyrene		
Isophorone	14	ט
2-Methyl-4,6-dinitrophenol	14	ש
Naphthalene	71	ט
Nitrobenzene	14	ט
2-Nitrophenol	14	U
4-Nitrophenol	14	U
N-nitrosodi-n-propylamine	71	[ប
N-Nitrosodimethylamine	14	ט
N-Nitrosodiphenylamine	14	ט
Pentachlorophenol	14	ט
Phenanthrene	71	Ū
Phenol	14	Ŭ -
	14	Ŭ
Pyrene	14	Ŭ
1,2,4-Trichlorobenzene	14	Ιŏ
2,4,6-Trichlorophenol	14	۵

DILUTION FACTOR = 1.0 EXTRACTION VOLUME = 700 ML

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE NO. MW-1

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/91 ANALYSIS DATE 11/30/91

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Hydroquinone	14	ט

DILUTION FACTOR = 1.0 EXTRACTION VOLUME = 700 ML

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE NO. MW-1

SAMPLE DATE 11/15/97 EXTRACTION DATE 11/22/97 ANALYSIS DATE 11/30/91

COMPOUND	RESULT	Q
Internal Standards		
(*Recovery) 1,4-Dichlorobenzene-D4 Naphthalene-D8 Acenaphthene-D10 Phenanthrene-D10 Chrysene-D12 Perylene-D12 Surrogates	97 95 105 109 78 87	
(*Recovery) 2-Fluorophenol Phenol-D5 2,4,6-Tribromophenol Nitrobenzene-D5 2-Fluorobiphenyl Terphenyl-D14	49 33 67 67 65 92	-

OHTA FROM FILE: 7160N SCANS 309 TO 2520 ACQUIRED: 11 300 91 18:46:00 CALL: 7160M #3 SAMPLE: MN1 JOB 3386 AP14438 37 CONDS.: AUTOSAMPLR ISON 1 1994 To Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill of Fill SUPPOSHIE 144 .:: \_11 CI 20 1,4-bichelikhzlifte DA CS20 HI TROBEHZENE DS SUPROGATE CIAC MAPHTHALERE DO INTERNAL STANDARD likit! CS25 2-FLUOROBIPHENYL SURROCHTE 16:40 C150 ACEHAPHTHENE DIO INTERNAL STANDED CSSS 2.4.6-TRISROMOPHEHOL SURROGATE CIGO PHENHITHRENE DIO INTERNAL STANDARD 1 1111 25:10) (5%) TERFHFITE 914 SURROGATE CITO OFFICERE OLD INTERNAL STANDARD 2009 112 113 **电影 特种类构作 1**000 littefilm Stortmen  $\infty$ 

the said that the tente the time the tente the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to the tente to t

### ANALYTICAL RESULTS

## GAS CHROMATOGRAPHY/MASS SPECTROMETRY EXTRACTABLE LIBRARY COMPARISON SEARCH

SAMPLE I.D.:MW-1

JOB#:91-3386.21

FILE: 7160W

SCAN #	COMPOUND NAME	ESTIMATED CONCENTRATION (UNITS= UG/L)

### BASE/NEUTRAL/ACID EXTRACTABLES

LAB NAME RECRA ENVIRONMENTAL INC. 91-3386

JOB NO. 91-3386
DESC MW-1 FIELD DUP
SAMPLE NO. FIELD DUP

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/91 ANALYSIS DATE 11/30/91

	- <del> </del>	
COMPOUND (Units of Measure = UG/L )	2000	
(0.200 Of Medadie 2 00/11 )	RESULT	Q
Acenaphthene	14	U
Acenaphthylene	14	Ö
Anthracene	14	ŭ
Benzo(a) anthracene	14	ğ
Benzo(b) fluoranthene	14	
Benzo(k) fluoranthene	14	U
Benzo (a) pyrene	14	۵
Benzo(g,h,i)perylene	14	
Benzidine	110	ū
Bis (2-chloroethyl) ether		ט
Bis (2-chlorethoxy) methane	14	ā
Bis (2-chloroisopropyl) ether	14	ū
Bis (2-ethylhexyl) phthalate	14	<u>U</u> -
4-Bromophenylphenylether	14	ט
Butyl benzyl phthalate	14	ā
4-Chloro-3-methylphenol	14	ש
2-Chloronaphthalene	14	ū
2-Chlorophenol	14	U
4-Chlorophenylphenylether	14	U
Chrysene	14	ū
Dibenzo(a,h)anthracene	14	U
Di-n-butyl phthalate	14	U
1,2-Dichlorobenzene	14	Ū
1,3-Dichlorobenzene	14	ש
1,4-Dichlorobenzene	14	U
3,3'-Dichlorobenzidine	14	ש
2,4-Dichlorophenol	28	<u>U</u> ,
Diethylphthalate	14	Ŭ
2,4-Dimethylphenol	14	U
Dimethylphthalate	14	Ū
2,4-Dinitrophenol	14	ט
1,2-Diphenyl hydrazine	71	מ
2,4-Dinitrotoluene	110	U
2,6-Dinitrotoluene	14	Ŭ
Di-n-octylphthalate	14	Ū
Fluoranthene	14	Ü
Fluorene	14 14	Ū
Hexachlorobenzene		ַ
Hexachlorobutadiene	14	<u>ט</u>
Hexachlorocyclopentadiene	14	Ü
Hexachloroethane	14 14	ט ט

DILUTION FACTOR = 1.0 EXTRACTION VOLUME = 700 ML

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO. DESC

91-3386

DESC MW-1 FIELD DUP SAMPLE NO. FIELD DUP

**SAMPLE DATE 11/15/91** EXTRACTION DATE 11/22/71 ANALYSIS DATE 11/30/1

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Indeno(1,2,3-cd)pyrene	14	U
Isophorone	14	שׁ
2-Methyl-4,6-dinitrophenol	71	Ϊ́σ
Naphthalene	14	Ü
Nitrobenzene	1 14	Ü
2-Nitrophenol	14	Ü
4-Nitrophenol	71	Ŭ
N-nitrosodi-n-propylamine N-Nitrosodimethylamine	14	Ιŏ
N-Nitrosodimethylamine	14	Ö
N-Nitrosodiphenylamine	14	Ū
Pentachlorophenol	71	Ŭ
Phenanthrene	14	שֿו
Phenol	14	ַ טַ
Pyrene	14	تا
1,2,4-Trichlorobenzene	14	Ü
2,4,6-Trichlorophenol	1 14	שֿו

DILUTION FACTOR - 1.0 EXTRACTION VOLUME - 700 ML

#### RADIAN CORPORATION METHOD 8270 - SELECTED SEMIVOLATILE **ORGANICS**

LAB NAME JOB NO. DESC

RECRA ENVIRONMENTAL INC.

91-3386

DESC MW-1 FIELD DUP SAMPLE NO. FIELD DUP

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/91 ANALYSIS DATE 11/30/91

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Hydroquinone	14	U

DILUTION FACTOR = 1.0 EXTRACTION VOLUME = 700 ML

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

DESC MW-1 FIELD DUP SAMPLE NO. FIELD DUP

SAMPLE DATE 11/15/92 EXTRACTION DATE 11/22/9 ANALYSIS DATE 11/30/9r

COMPOUND	RESULT	Q
Internal Standards		
(*Recovery) 1,4-Dichlorobenzene-D4 Naphthalene-D8 Acenaphthene-D10 Phenanthrene-D10 Chrysene-D12 Perylene-D12	97 94 103 109 78 89	
Surrogates  (†Recovery) 2-Fluorophenol Phenol-D5 2,4,6-Tribromophenol Nitrobenzene-D5 2-Fluorobiphenyl Terphenyl-D14	49 33 76 80 74 103	-

DATA FROM FILE: 7161M SCANS 360 10 2520 ACQUIPED: 11/30/91 19:37:00 CALI: 7101M #3 SOMPLE: NWIFIELDOUP JOB 3386 AP14438/39 COMOS.: AUTOSAMPLR ISON Sail 1 8:20 INTERNAL STANDARD **CS20 HTTROBENZEHE D5** SURROGATE C140 HAPHTHALENE D8 INTERNAL STANDARD Hillitt CS25 2-FLUOPOBIPHENYL 16:40 CISO ACENAPHTHENE DIO INTERNAL STANDRO CS55 2,4,6-TRIBROMOPHENOL SURPOGATE CISO PHENANTHRENE DIG INTERNAL STANDARD 1503 Program - US30 TERPHENYL D14 SURROGATE CITO CHRYSENE 812 HITERIAL STANDARD 1441 14:36 CITS POWERE DIS THE PRO STORDORD

11.3

SUPPOGNIE

SURROGATE

### ANALYTICAL RESULTS

### GAS CHROMATOGRAPHY/MASS SPECTROMETRY EXTRACTABLE LIBRARY COMPARISON SEARCH

SAMPLE I.D.:MW-1 FIELD DUP

JOB#:91-3386.22

FILE: 7161W

SCAN #	COMPOUND NAME	ESTIMATED CONCENTRATION (UNITS= UG/L)
	·	

### BASE/NEUTRAL/ACID EXTRACTABLES

LAB NAME JOB NO. RECRA ENVIRONMENTAL INC.

91-3386

SAMPLE NO. MW-2

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/91 ANALYSIS DATE 11/30/91

COMPOUND (Units of Measure = UG/L )	RESULT	0
	KBSUDI	Q
Acenaphthene	14	ט
Acenaphthylene	14	Ū
Anthracene	14	Ŭ
Benzo(a) anthracene	14	Ü
Benzo(b) fluoranthene	14	Ŭ
Benzo(k) fluoranthene	14	Ü
Benzo(a) pyrene	14	Ŭ
Benzo(g,h,i) perylene	14	Ü
Benzidine	110	Ŭ
Bis (2-chloroethyl) ether	14	Ŭ
Bis(2-chlorethoxy)methane	14	ŭ
Bis(2-chloroisopropyl)ether	14	ŭ
Bis (2-ethylhexyl) phthalate	14	Ü
4-Bromophenylphenylether	14	<b>ט</b>
Butyl benzyl phthalate	14	Ŭ
4-Chloro-3-methylphenol	14	Ŭ
2-Chloronaphthalene	14	ğ
2-Chlorophenol	14	Ιτ
4-Chlorophenylphenylether	14	מ
Chrysene	14	Ü
Dibenzo(a,h)anthracene	14	Ŭ
Di-n-butyl phthalate	14	Ιŭ
1,2-Dichlorobenzene	14	น
1,3-Dichlorobenzene	14	Ŭ
1,4-Dichlorobenzene	14	Ŭ
3,3'-Dichlorobenzidine	28	Ū
2,4-Dichlorophenol	14	Ū
Diethylphthalate	14	ี <u>บ</u>
2,4-Dimethylphenol	14	Ū
Dimethylphthalate	14	ן ט
2,4-Dinitrophenol	71	ט
1,2-Diphenyl hydrazine	110	U
2,4-Dinitrotoluene 2,6-Dinitrotoluene	14	ט
Di-n-octylphthalate	14	U
Fluoranthene	14	ט
Fluorene	14	ט
Hexachlorobensene	14	ט
Hexachlorobutadiene	14	ָּט
Hexachlorocyclopentadiene	14	ט
Hexachloroethane	14	ט
	14	ט

DILUTION FACTOR = 1.0 EXTRACTION VOLUME = 700 ML

### BASE/NEUTRAL/ACID EXTRACTABLES

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE NO. MW-2

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/90 ANALYSIS DATE 11/30/9

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Indeno(1,2,3-cd)pyrene	14	U
Isophorone	14	ΙŬ
2-Methyl-4,6-dinitrophenol	71	Ιŭ
Naphthalene	2.4	J
Nitrobenzene	14	Ü
2-Nitrophenol	14	Ü
-Nitrophenol	71	Ŭ
N-nitrosodi-n-propylamine	14	ŭ
N-NICTOSOCIMECNVIAMINE	14	Ŭ
N-Nitrosodiphenylamine	14	Ŭ
Pentachlorophenol	71	ŭ
Phenanthrene	2.1	Ĵ
Phenol	14	ַ ט
Pyrene	14	Ü
.,2,4-Trichlorobenzene	14	ď
2,4,6-Trichlorophenol	1 14	ğ

DILUTION FACTOR = 1.0 EXTRACTION VOLUME = 700 ML

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE NO. MW-2

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/91 ANALYSIS DATE 11/30/91

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Hydroquinone	14	U ·

DILUTION FACTOR = 1.0 EXTRACTION VOLUME = 700 ML

LAB NAME

RECRA ENVIRONMENTAL INC.

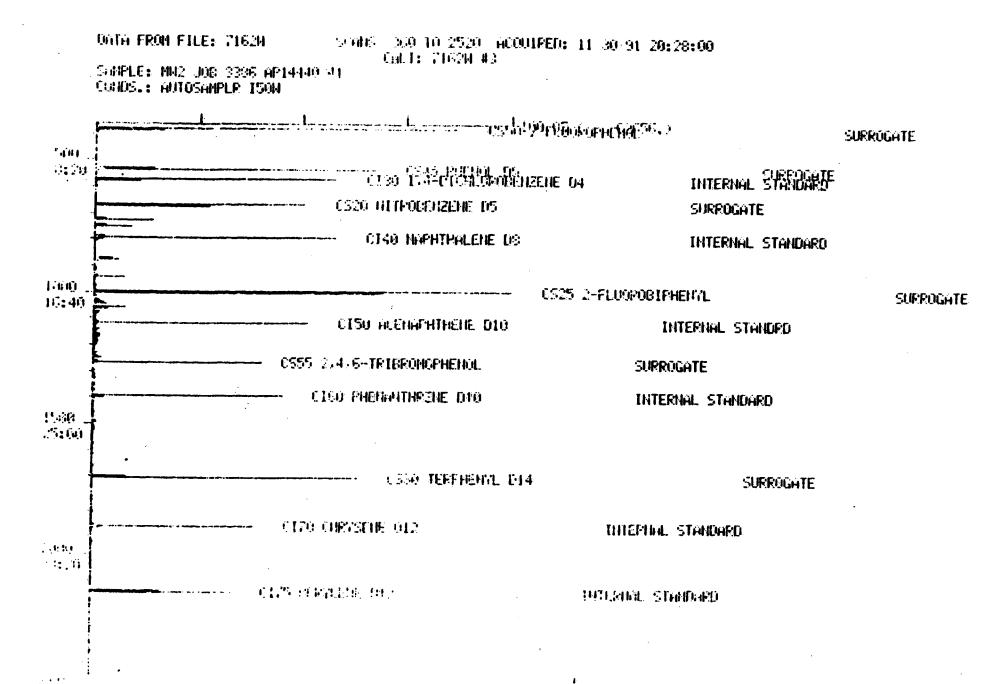
JOB NO.

91-3386

SAMPLE NO. MW-2

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/9 ANALYSIS DATE 11/30/9

COMPOUND	RESULT	Q
Internal Standards		
(*Recovery) 1,4-Dichlorobenzene-D4 Naphthalene-D8 Acenaphthene-D10 Phenanthrene-D10 Chrysene-D12 Perylene-D12 Surrogates	109 105 119 121 101 116	
(*Recovery) 2-Fluorophenol Phenol-D5 2,4,6-Tribromophenol Nitrobenzene-D5 2-Fluorobiphenyl Terphenyl-D14	42 33 49 65 66 58	-



#### ANALYTICAL RESULTS

### GAS CHROMATOGRAPHY/MASS SPECTROMETRY EXTRACTABLE LIBRARY COMPARISON SEARCH

SAMPLE I.D.:MW-2

JOB#:91-3386.23

FILE: 7162W

SCAN #	COMPOUND NAME	ESTIMATED CONCENTRATION (UNITS= UG/L)
722	UNKNOWN	11
746	2-FLUORO-4-NITRO PHENOL (403-19-0)	7.3
938	UNSATURATED HYDROCARBON	6.3
1053	DIMETHYL NAPHTHALENE ISOMER	6.4

### BASE/NEUTRAL/ACID EXTRACTABLES

LAB NAME RECRA ENVIRONMENTAL INC.

JOB NO. 91-3386

SAMPLE NO. MW-3

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/91 ANALYSIS DATE 11/30/91

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Acenaphthene		
Acenaphthylene	14	U
Anthracene	14	ט
Benzo (a) anthracene	14	ט
Benzo (b) fluoranthene	14	U
Benzo (k) fluoranthene	14	ש
Benzo (a) pyrene	14	ש
Benzo(g, h, i) perylene	14	ש
Benzidine	14	U
Bis (2-chloroethyl) ether	110	ט
Bis (2-chlorethoxy) methane	14	ט
Bis (2-chloroisopropyl) ether	14	ט
Bis (2-ethylhexyl) phthalate	14	ַ ד
4-Bromophenylphenylether	14	ם
Butyl benzyl phthalate	14	ש
4-Chloro-3-methylphenol	14	ַ
2-Chloronaphthalene	14	ט
2-Chlorophenol	14	ט
4-Chlorophenylphenylether	14	ט
Chrysene	14	ט
Dibenzo(a,h)anthracene	14	U
Di-n-butyl phthalate	14	U
1,2-Dichlorobenzene	14	שַ
1,3-Dichlorobenzene	14	U
1,4-Dichlorobenzene	14	Ü
3,3'-Dichlorobenzidine	14	ש
2,4-Dichlorophenol	28	U
Diethylphthalate	14	Ü
2,4-Dimethylphenol	14	ñ
Dimethylphthalate	,— ,	Ū
2,4-Dinitrophenol	14	ט
1,2-Diphenyl hydrazine	71	Ü
2,4-Dinitrotoluene	14	מ
2,6-Dinitrotoluene	14	Q Q
Di-n-octylphthalate	14	ŭ
Fluoranthene	14	ט
Fluorene	14	Ü
lexachlorobenzene	14	ü
iexachlorobutadiene	14	lö
Hexachlorocyclopentadiene	14	ŭ
dexachloroethane	14	ğ

DILUTION FACTOR = 1.0 EXTRACTION VOLUME = 700 ML

### METHOD 625 BASE/NEUTRAL/ACID EXTRACTABLES

LAB NAME JOB NO.

RECRA ENVIRONMENTAL INC.

91-3386

SAMPLE NO. MW-3

SAMPLE DATE 11/15/94 EXTRACTION DATE 11/22/9 ANALYSIS DATE 11/30/94

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Indeno(1,2,3-cd)pyrene	14	บ
Isophorone	14	
2-Methyl-4,6-dinitrophenol	71	١ <del>٣</del>
Naphthalene	14	מ
Nitrobenzene	14	ŭ
2-Nitrophenol	14	
4-Nitrophenol	71	ט
N-nitrosodi-n-propylamine N-Nitrosodimethylamine	14	ğ
N-Nitrosodimethylamine	14	ŭ
N-Nitrosodiphenvlamine	14	
Pentachlorophenol	71	ט
Phenanthrene		<u> </u>
Phenol	14	12
Pyrene	14	Ū
1,2,4-Trichlorobenzene	14	ā
2,4,6-Trichlorophenol	14 14	Ü

DILUTION FACTOR = 1.0 EXTRACTION VOLUME = 700 ML

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE NO. MW-3

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/91 ANALYSIS DATE 11/30/91

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Hydroquinone	14	U

DILUTION FACTOR = 1.0 EXTRACTION VOLUME = 700 ML

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE NO. MW-3

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/91 ANALYSIS DATE 11/30/54

COMPOUND	RESULT	Q
Internal Standards		
(*Recovery) 1,4-Dichlorobenzene-D4 Naphthalene-D8 Acenaphthene-D10 Phenanthrene-D10 Chrysene-D12 Perylene-D12 Surrogates	116 113 124 125 90 102	
(*Recovery) 2-Fluorophenol Phenol-D5 2,4,6-Tribromophenol Nitrobenzene-D5 2-Fluorobiphenyl Terphenyl-D14	42 33 49 65 66 58	-

275

OHTA FROM FILE: 7163M SCHMS 360 TO 2520 ACQUIRED: 11/30/91 21:20:00 CHLI: 71630 #3 SAMPLE: MA3 JOB 3386 AP1442 43 CONDS.: AUTOSAMPLE 150H Trocker Serbschustor SUFFOGATE ું <del>નું કો</del> 0:20 INTERNAL STANDAR CS20 HITPODENZENE 05 SUPROGATE CI40 NAPHTHALENE D8 INTERNAL STANDARD 1100 US2S 2-FLOOR/BIPHENNL SUPPOSATE 16:40 CISO ACENAPHTHERE DIO INTERNAL STANDRO CSSS 2-4-6-TRIBRONOPHENOL SURROGATE C160 PHEHANTHRENE D10 INTERNAL STANDARD 15410 25:00 COOR TERPHENNE DIA SUPROGATE C170 CHRYSIDE 012 INTERHAL STANDARD .:: 91 1: 1: 美有等 经条件条件 的复数 COLEPTAN, STANDARD

والواوية والواوية والماد المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المناف المنا

### ANALYTICAL RESULTS

### GAS CHROMATOGRAPHY/MASS SPECTROMETRY EXTRACTABLE LIBRARY COMPARISON SEARCH

SAMPLE I.D.:MW-3

JOB#:91-3386.24

FILE: 7163W

SCAN #	COMPOUND NAME	ESTIMATED CONCENTRATION (UNITS= UG/L)
525	1,3-DITHIOLANE (4829-04-3)	7.1
955	DICHLOROBENZENAMINE ISOMER	26
1017	CHLORO DIMETHYL PHENOL ISOMER	10
1153	UNKNOWN	8.0
1312	UNKNOWN	130
1363	UNKNOWN	6.0
1456	ALKYL SUBSTITUTED HYDROCARBON	12
1577	UNKNOWN	21
1745	UNKNOWN	34

### BASE/NEUTRAL/ACID EXTRACTABLES

LAB NAME RECRA ENVIRONMENTAL INC.

JOB NO. 91-3386

SAMPLE NO. MW-4

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/91 ANALYSIS DATE 11/30/91

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Acenaphthene	12	U
Acenaphthylene	12	Ü
Anthracene	1 12	ŭ
Benzo(a) anthracene	12	Ü
Benzo(b) fluoranthene	12	ğ
Benzo(k) fluoranthene	12	ğ
Benzo (a) pyrene	12	
Benzo(g,h,i)perylene	12	Ü
Benzidine		ש
Bis(2-chloroethyl)ether	100	ū
Bis (2-chlorethoxy) methane	12	U
Bis (2-chloroisopropyl) ether	12	0
Bis (2-ethylhexyl) phthalate	12	U .
4-Bromophenylphenylether	12	ט
Butyl benzyl phthalate	12	ט
4.Chloro.2.mothulphonol	12	Ū
4-Chloro-3-methylphenol	12	ַ ט
2-Chloronaphthalene	12	U
2-Chlorophenol	12	U
4-Chlorophenylphenylether	12	Ŭ
Chrysene	12	Ŭ
Dibenzo(a,h)anthracene	12	Ŭ
Di-n-butyl phthalate	1 12	Ū
1,2-Dichlorobenzene	12	l iii
1,3-Dichlorobenzene	3.5	Ŭ J
1,4-Dichlorobenzene	12.3	[ט
3,3'-Dichlorobenzidine	25	ָ <sup>ט</sup>
2,4-Dichlorophenol	12	Ü
Diethylphthalate	12	ŭ
2,4-Dimethylphenol	12	ļ. <del></del>
Dimethylphthalate		U
2,4-Dinitrophenol	12	ט
1,2-Diphenyl hydrazine	62	Ŭ
2,4-Dinitrotoluene	100	Ū
2,6-Dinitrotoluene	12	Ū
Di-n-octylphthalate	12	U
Fluoranthene	12	U
Fluorene	12	Ŭ
Hexachlorobensene	12	U
Hexachlorobutadiene	12	U
NASCH JOSOWA CONTRACTOR	12	U
Hexachlorocyclopentadiene Hexachloroethane	12	U
revecutorostugus	12	Ū

DILUTION FACTOR = 1.0 EXTRACTION VOLUME = 800 ML

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE NO. MW-4

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/9 ANALYSIS DATE 11/30/9

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Indeno(1,2,3-cd)pyrene	12	Ū
Isophorone	12	U
2-Methyl-4,6-dinitrophenol	62	Ū
Naphthalene Nitrobenzene	12	ΙŪ
Nitropenzene 2. Nitrophonol	12	Ū
2-Nitrophenol	12	ט
4-Nitrophenol	62	U
N-nitrosodi-n-propylamine N-Nitrosodimethylamine	12	שו
N-Nitrosodimethylamine	12	ט
Pentachlorophenol	12	ט
Phenanthrene	62	ָ טַ טַ
Phenol	12	Ū _
Pyrene	12	ע
.2,4-Trichlorobenzene	12	ע
2,4,6-Trichlorophenol	12 12	ם

DILUTION FACTOR = 1.0 EXTRACTION VOLUME = 800 ML

275

### RADIAN CORPORATION METHOD 8270 - SELECTED SEMIVOLATILE ORGANICS

LAB NAME JOB NO.

RECRA ENVIRONMENTAL INC.

91-3386

SAMPLE NO. MW-4

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/91 ANALYSIS DATE 11/30/91

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Hydroquinone	12	U

DILUTION FACTOR = 1.0 EXTRACTION VOLUME = 800 ML

### METHOD 625 BASE/NEUTRAL/ACID EXTRACTABLES

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE NO. MW-4

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/71 ANALYSIS DATE 11/30/1

COMPOUND	RESULT	Q
Internal Standards		
(*Recovery) 1,4-Dichlorobenzene-D4 Naphthalene-D8 Acenaphthene-D10 Phenanthrene-D10 Chrysene-D12 Perylene-D12 Surrogates	108 105 112 111 88 97	
(*Recovery) 2-Fluorophenol Phenol-D5 2,4,6-Tribromophenol Nitrobenzene-D5 2-Fluorobiphenyl Terphenyl-D14	51 34 78 71 61 57	-

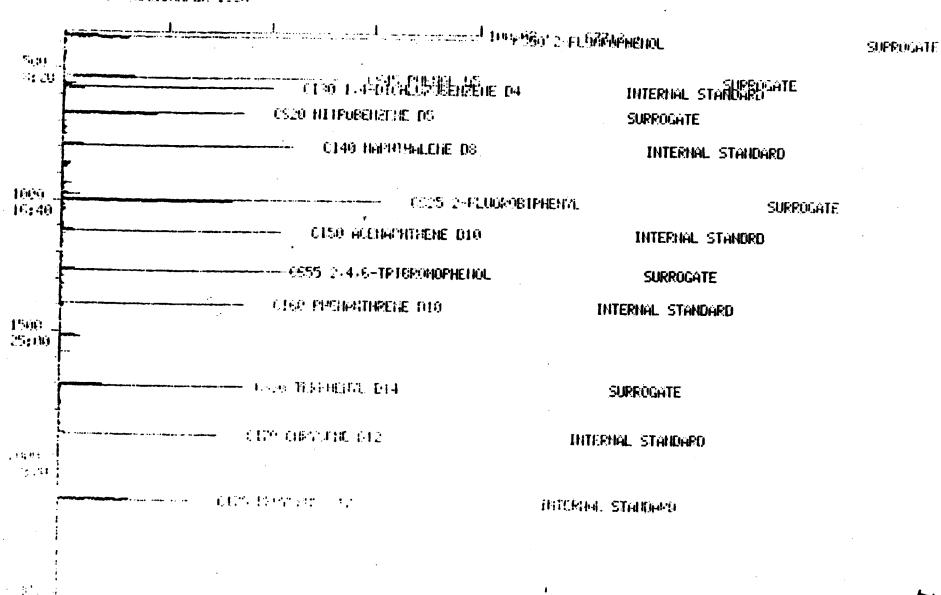
DATA FROM FILE: 2164H

Soults 360 10 2570 4600/JRED: 11/30/31 32:11:00

कर्ताः होस्या छ

SHAPLE: 1994 1998 3086 APT 4412 45

COMOS.: AUTOSAMPLE 156M



### ANALYTICAL RESULTS

### GAS CHROMATOGRAPHY/MASS SPECTROMETRY EXTRACTABLE LIBRARY COMPARISON SEARCH

SAMPLE I.D.:MW-4

JOB#:91-3386.25

FILE: 7164W

SCAN #	COMPOUND NAME	ESTIMATED CONCENTRATION (UNITS= UG/L)

RECRA ENVIRONMENTAL INC. LAB NAME

JOB NO. 91-3386

SAMPLE NO. MW-5

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/91 ANALYSIS DATE 11/30/91

COMPOUND		
(Units of Measure = UG/L )	RESULT	Q
Acenaphthene	10	,,
Acenaphthylene	12 12	ם
Anthracene	12	
Benzo(a) anthracene	12	מ
Benzo(b) fluoranthene	12	ŭ
Benzo(k) fluoranthene	12	d
Benzo (a) pyrene	12	ğ
Benzo(g,h,i)perylene	12	77
Benzidine	100	U U
Bis (2-chloroethyl) ether	1 12	40
Bis(2-chlorethoxy)methane	12	l <del>ii</del>
Bis(2-chloroisopropyl)ether	1 12	ָם ק
Bis(2-ethylhexyl)phthalate	12	Ŭ
4-Bromophenylphenylether	12	Ü
Butyl benzyl phthalate	12	ם
4-Chloro-3-methylphenol	12	Ü
2-Chloronaphthalene	12	Ü
2-Chlorophenol	12	Ŭ
4-Chlorophenylphenylether	12	Ŭ
Chrysene	12	Ŭ
Dibenzo(a,h)anthracene	12	Ŭ
Di-n-butyl phthalate	12	Ŭ
1,2-Dichlorobenzene	12	Ū
1,3-Dichlorobenzene	12	Ū
1,4-Dichlorobenzene	12	U
3,3'-Dichlorobenzidine		U
2,4-Dichlorophenol Diethylphthalate		U
2,4-Dimethylphenol		U
Dimethylphthalate		U
2,4-Dinitrophenol	12	U
1,2-Diphenyl hydrazine		U
2,4-Dinitrotoluene	100	ָ ט
2,6-Dinitrotoluene		ט
Di-n-octylphthalate	12	U
Fluoranthene	12	Ŭ
Fluorene	12	<u>ט</u>
Hexachlorobenzene		U
Hexachlorobutadiene		U
Hexachlorocyclopentadiene		U
Hexachloroethane		U U
	14	u

DILUTION FACTOR = 1.0 EXTRACTION VOLUME - 800 ML

BASE/NEUTRAL/ACID EXTRACTABLES

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE NO. MW-5

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/9 ANALYSIS DATE 11/30/9

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Indeno(1,2,3-cd)pyrene	12	U
Isophorone	12	Ü
2-Methyl-4,6-dinitrophenol	62	Ü
Naphthalene	12	Ū
Nitrobenzene	12	۱ŭ
2-Nitrophenol	12	Ŭ
4-Nitrophenol	62	Ū
N-nitrosodi-n-propylamine	12	Ü
N-Nitrosodimethylamine	12	Ū
N-Nitrosodiphenylamine	12	U
Pentachlorophenol	62	Ū
Phenanthrene	12	Ū -
Phenol	12	U
Pyrene	12	U
1,2,4-Trichlorobenzene	12	Ū
2,4,6-Trichlorophenol	12	Ŭ

DILUTION FACTOR = 1.0 EXTRACTION VOLUME = 800 ML

#### RADIAN CORPORATION METHOD 8270 - SELECTED SEMIVOLATILE ORGANICS

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE NO. MW-5

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/91 ANALYSIS DATE 11/30/91

COMPOUND (Units of Measure = UG/L	)	RESULT	Q
Hydroquinone		12	บ

DILUTION FACTOR = 1.0 EXTRACTION VOLUME = 800 ML

### 111

# RADIAN CORPORATION AQUEOUS MATRIX METHOD 625 BASE/NEUTRAL/ACID EXTRACTABLES

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE NO. MW-5

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/5 ANALYSIS DATE 11/30/5

COMPOUND	RESULT	Q
Internal Standards		
(*Recovery) 1,4-Dichlorobenzene-D4 Naphthalene-D8 Acenaphthene-D10 Phenanthrene-D10 Chrysene-D12 Perylene-D12 Surrogates	121 119 131 132 96 108	
(*Recovery) 2-Fluorophenol Phenol-D5 2,4,6-Tribromophenol Nitrobenzene-D5 2-Fluorobiphenyl Terphenyl-D14	38 24 53 63 59 61	

Out 1: 24650 #3 -544PLE: MM5 JOB 3306 AP14646 47 COURS.: AUTOSAMPLE 150N 1 1980 Epune Market SUPPOCATE .; 1; 1 Sec. (1) CAPURE THE DICHLOROBERSENE DA SHEEFIGE STANDARD CS20 HITFODELIZENE DS SURROGATE CIME HAPITHILENE DS INTERNAL STANDARD 11639 0525 2-FLUOROBIPHENNIL SURROGATE 16:49 CISS ACEHAPHTHENE DIS INTERNAL STANDED CSSS 2.4.6-TRIBROMOPHENOL SURROGATE TION PHENDERT DID INTERNAL STANDARD 1 4 4 1 . 11: SURROGHTE **有种种类性的** INTERNAL STANDARD 11111 李丰华,她 经收益 医皮肤 INTERN. STATURED

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that that that that that the table to be the table to be the table to be the table to be the table to be the table to be the table to be the table to be the table to be the table to be the table to be the table to be the table to be the table to be the table to be the table to be the table to be the table to be the table to be the table to be the table to be the table to be the table to be the table to be the table to be the table to be the table to be the table to be the table to be the table to be the table to be the table to be the table to be the table to be the table to be the table to be the table to be the table to be the table to be the table to be the table to be the table to be the table to be the table to be the table to be the table to be the table to be the table to be the table to be the table to be the table to be the table to be the table to be table to be the table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table to be table

### ANALYTICAL RESULTS

### GAS CHROMATOGRAPHY/MASS SPECTROMETRY EXTRACTABLE LIBRARY COMPARISON SEARCH

SAMPLE I.D.:MW-5

JOB#:91-3386.26

FILE: 7165W

scan #	COMPOUND NAME	ESTIMATED CONCENTRATION (UNITS= UG/L)

#### BASE/NEUTRAL/ACID EXTRACTABLES

LAB NAME JOB NO. RECRA ENVIRONMENTAL INC.

91-3386

SAMPLE NO. MW-6

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/91 ANALYSIS DATE 11/30/91

COMPOUND (Units of Measure = UG/L )	result	0
Acenaphthene		<del>  </del>
Acenaphthylene	12	ā
Anthracene	12	ū
Benzo(a) anthracene	12	U
Benzo (b) fluoranthene	12	U
Benzo(k) fluoranthene	12	ט
Benzo (a) pyrene	12	ש
Benzo(g,h,i)perylene	12	ū
Benzidine	12 100	ŭ
Bis (2-chloroethyl) ether		U
Bis (2-chlorethoxy) methane	12	ם
Bis (2-chloroisopropyl) ether	12 12	
Bis (2-ethylhexyl) phthalate	12	<u>u</u> -
4-Bromophenylphenylether	12	מ
Butyl benzyl phthalate	12	מ
4-Chloro-3-methylphenol	12	מ
2-Chloronaphthalene	12	ם
2-Chlorophenol	12	ļ.
4-Chlorophenylphenylether		מ
Chrysene	12 12	0
Dibenzo(a,h)anthracene	12	Ü
Di-n-butyl phthalate	12	ם
1,2-Dichlorobenzene	12	<del>U</del>
1,3-Dichlorobenzene	12	ם
1,4-Dichlorobenzene	12	ŭ
3,3'-Dichlorobenzidine	25	d
2,4-Dichlorophenol	12	<del>   </del>
Diethylphthalate	12	ŭ
2,4-Dimethylphenol	12	ŭ
Dimethylphthalate	12	ا قا
2,4-Dinitrophenol	62	ŭ
1,2-Diphenyl hydrazine	100	ŭ
2,4-Dinitrotoluene	12	មី
2,6-Dinitrotoluene	12	ŭ
Di-n-octylphthalate	12	ŭ
Fluoranthene	12	ŭ
Fluorene	12	ŭ
Hexachlorobenzene	12	Ŭ
Hexachlorobutadiene	12	ŭ
Hexachlorocyclopentadiene	12	Ŭ
Hexachloroethane	12	Ŭ

DILUTION FACTOR = 1.0 EXTRACTION VOLUME = 800 ML

#### BASE/NEUTRAL/ACID EXTRACTABLES

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE NO. MW-6

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/9 ANALYSIS DATE 11/30/9

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Indeno(1,2,3-cd)pyrene	12	U
Isophorone	12	Ŭ
2-Methyl-4,6-dinitrophenol	62	<u>.</u>
Naphthalene	12	177
Nitrobenzene	12	١ <del>٢</del>
2-Nitrophenol	12	157
i-Nitrophenol	12 62	ŭ
V-nitrogodi-n-propylamine	1 12	ŭ
N-NICTOSOCIMethylamine	12	Ü
V-Nitrosodiphenvlamine	12	15
Pentachlorophenol	62	ŭ
Phenanthrene	12	
Phenol	12	ប្ត-
Pyrene		ט
1,2,4-Trichlorobenzene	12	ט
2,4,6-Trichlorophenol	12 12	a

DILUTION FACTOR = 1.0 EXTRACTION VOLUME = 800 ML

## RADIAN CORPORATION METHOD 8270 - SELECTED SEMIVOLATILE ORGANICS

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE NO. MW-6

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/91 ANALYSIS DATE 11/30/91

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Hydroquinone	12	ט

DILUTION FACTOR = 1.0 EXTRACTION VOLUME = 800 ML

#### BASE/NEUTRAL/ACID EXTRACTABLES

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE NO. MW-6

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/\$\frac{1}{30/\frac{1}{30}}

COMPOUND	RESULT	Q	7
Internal Standards			1
(*Recovery) 1,4-Dichlorobenzené-D4 Naphthalene-D8 Acenaphthene-D10 Phenanthrene-D10 Chrysene-D12 Perylene-D12	114 110 119 115 86 94		
Surrogates		İ	
(*Recovery) 2-Fluorophenol Phenol-D5 2,4,6-Tribromophenol	58 40	-	
Nitrobenzene-D5 2-Fluorobiphenyl Terphenyl-D14	76 75 69 83		

0474 FROM FILE: 7166N SCHOOL DEG TO 0920 ACQUIRED: 11/80 91 23:54:00 CHUI: 7156M #3 SOMPLE: NW6 JOB 3386 AP14448 49 CONDS.: AUTOSAMPLE ISON 100, 950 2 ค. เอียดักษายน SUPPOGATE 5(11) 8: 30 CT SO T. 4-DICHERROEHERE CA INTERNAL STANDARD SURROGATE CS20 HITMOBENZENE OS SURROGATE C140 NAPHTHALENE DS INTERNAL STANDARD ) (III) (G CS25 2-FLUOPORIPHENYL SURROGATE. 15:40 0150 HOENHATHENE DID INTERHAL STANDED CSSS 2-4-6-TRIBROMOPHEHOL SURROGATE CISO PHENMITARENE DIO INTERNAL STANDARD 1500 25:00 0550 TEFFHERML 014 SURROGATE CI70 CHPYSENE DIG HHERIM. STANDARD 11:11 13.30 COSTRATES IN THEREIN STREET

والمرابع الأرباء والمرابع المالية المناسبة المتحلة والمتحلة المتحلة

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#### ANALYTICAL RESULTS

### GAS CHROMATOGRAPHY/MASS SPECTROMETRY EXTRACTABLE LIBRARY COMPARISON SEARCH

SAMPLE I.D.:MW-6

JOB#:91-3386.27

FILE: 7166W

SCAN #	COMPOUND NAME	ESTIMATED CONCENTRATION (UNITS= UG/L)
874	OXYGENATED COMPOUND	9.9

LAB NAME RECRA ENVIRONMENTAL INC.

JOB NO. 91-3386

SAMPLE NO. MW-7

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/91 ANALYSIS DATE 12/01/91

COMPOUND (Units of Measure = UG/L )		
(Units of Measure = UG/L )	RESULT	Q
Acenaphthene	12	7.7
Acenaphthylene	12	ū
Anthracene	12	Ü
Benzo(a) anthracene	12	Ü
Benzo(b) fluoranthene	12	ָּט
Benzo(k) fluoranthene	12	ָט
Benzo (a) pyrene	12	U
Benzo(g,h,i)perylene Benzidine	12	<b> </b> ₩
	100	ט ט
Bis (2-chloroethyl) ether	12	ä
Bis(2-chlorethoxy)methane	12	ä
Bis(2-Chloroisopropyl)erher	12	- <del>تا</del>
Bis(2-ethylhexyl)phthalate	12	פֿן
4-Bromophenylphenylether	12	<del>ס</del>
Butyl benzyl phthalate	12	۵
4-Chloro-3-methylphenol	12	ğ
2-Chloronaphthalene	12	ğ
2-Chlorophenol	12	ä
4-Chlorophenylphenylether	12	do
Chrysene	12	ם
Dibenzo (a, h) anthracene	12	77
Di-n-butyl phthalate	12	U U
1,2-Dichlorobenzene	12	ט
1,3-Dichlorobenzene	12	ם
1,4-Dichlorobenzene	12	ָ ט
3,3'-Dichlorobenzidine	25	77
2,4-Dichlorophenol	12	Ŭ
Diethylphthalate	12	Ü
2,4-Dimethylphenol	12	<del>ט</del>
Dimethylphthalate	12	Ü
2,4-Dinitrophenol	62	מ
1,2-Diphenyl hydrazine	100	מ
2,4-Dinitrotoluene	12	מ
2,6-Dinitrotoluene	12	Ŭ
Di-n-octylphthalate		ŭ
Fluoranthene		บั
Fluorene		ชั
Hexachlorobenzene		ซั l
Hexachlorobutadiene		ซี l
Hexachlorocyclopentadiene		<u>ט</u>
Hexachloroethane		ŭ

DILUTION FACTOR = 1.0 EXTRACTION VOLUME = 800 ML The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

**SAMPLE DATE 11/15/91** EXTRACTION DATE 11/22/TANALYSIS DATE 12/01/5

12

12

12

SAMPLE NO. MW-7

Phenol

Pyrene

COMPOUND (Units of Measure = UG/L RESULT Q Indeno (1, 2, 3-cd) pyrene 12 U Isophorone 12 U 2-Methyl-4,6-dinitrophenol U 62 Naphthalene 12 UUU Nitrobenzene 12 1 2-Nitrophenol 12 4-Nitrophenol 62 U N-nitrosodi-n-propylamine 12 U N-Nitrosodimethylamine 12 Ū N-Nitrosodiphenylamine Ŭ 12 Pentachlorophenol 62 U Phenanthrene 12 U

DILUTION FACTOR = 1.0 EXTRACTION VOLUME = 800 ML

1,2,4-Trichlorobenzene

2,4,6-Trichlorophenol

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## RADIAN CORPORATION METHOD 8270 - SELECTED SEMIVOLATILE ORGANICS

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE NO. MW-7

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/91 ANALYSIS DATE 12/01/91

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Hydroquinone	12	U

DILUTION FACTOR = 1.0 EXTRACTION VOLUME = 800 ML

BASE/NEUTRAL/ACID EXTRACTABLES

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

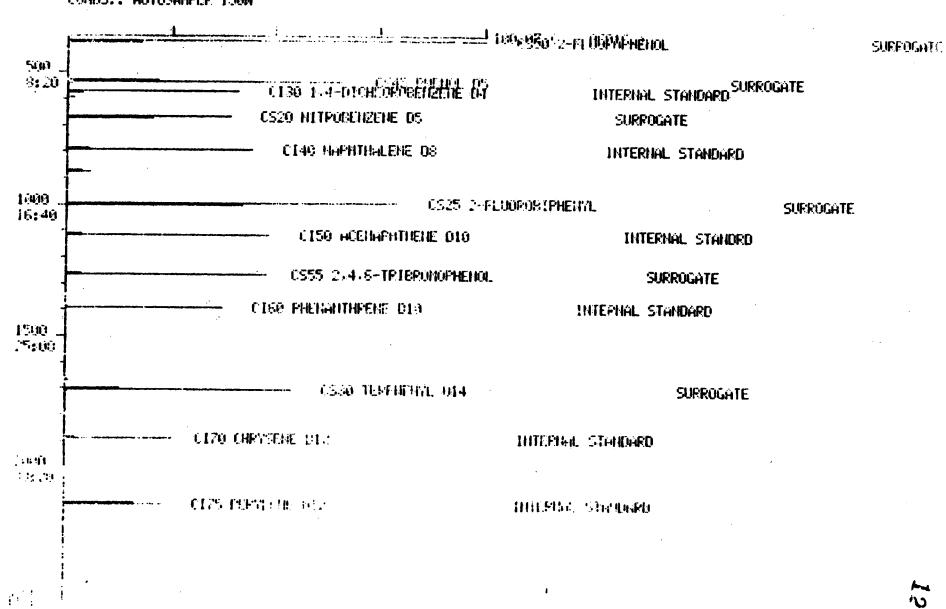
91-3386

SAMPLE NO. MW-7

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/11 ANALYSIS DATE 12/01/11

COMPOUND	RESULT	Q	
Internal Standards			1
(†Recovery) 1,4-Dichlorobenzene-D4 Naphthalene-D8 Acenaphthene-D10 Phenanthrene-D10 Chrysene-D12 Perylene-D12	113 111 123 117 86 98		
Surrogates  (†Recovery) 2-Fluorophenol Phenol-D5 2,4,6-Tribromophenol Nitrobenzene-D5 2-Fluorobiphenyl Terphenyl-D14	61 41 84 72 72 72 84	•	3 Rungal Section

OATA FROM FILE: 7167N SCAMS 360 TO 2520 ACCOURED: 12/01/01 0:45:00 CALT: 7167W #3 SAMPLE: MW7 JOB 3386 AP14450 91 CONUS.: AUTOSAMPLE 150A



#### ANALYTICAL RESULTS

## GAS CHROMATOGRAPHY/MASS SPECTROMETRY EXTRACTABLE LIBRARY COMPARISON SEARCH

SAMPLE I.D.:MW-7

JOB#:91-3386.28

FILE: 7167W

SCAN #	COMPOUND NAME	ESTIMATED CONCENTRATION (UNITS= UG/L)
872	OXYGENATED COMPOUND	6.4

LAB NAME RECRA ENVIRONMENTAL INC.

JOB NO. 91-3386

SAMPLE NO. MW-8

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/91 ANALYSIS DATE 12/02/91

COMPOUND (Units of Measure = UG/L )	RESULT	0
Acenaphthene		<del>-   -</del>
Acenaphthylene	12	ט
Anthracene	12	U
Benzo (a) anthracene	12	U
Benzo(b) fluoranthene	12	บ
Benzo(k) fluoranthene	12	ט
Benzo (a) pyrene	12	U
Benzo(g,h,i)perylene	12	U
Benzidine	12	<b>ט</b>
Bis(2-chloroethyl)ether	100	ט
Bis (2-chlorethoxy) methane	12	ַ
Pis (2-chlored company) when	12	U
Bis(2-chloroisopropyl)ether Bis(2-ethylhexyl)phthalate	12	ע -
l-Bromonhamilahamilaham	12	ט
Bromophenylphenylether Sutyl benzyl phthalate	12	U
l-Chloro-2-mothylphonol	12	U
-Chloro-3-methylphenol	12	מ
2-Chloronaphthalene	12	ן ט
2-Chlorophenol	12	טו
-Chlorophenylphenylether	12	U
Chrysene	12	U
Dibenzo (a, h) anthracene	12	ט
Di-n-butyl phthalate	12	ט
1,2-Dichlorobenzene	12	Ū
.,3-Dichlorobenzene	12	U
,4-Dichlorobenzene	12	U
3,3'-Dichlorobenzidine	25	U
4-Dichlorophenol	12	Ū
Diethylphthalate	12	U
4-Dimethylphenol	12	Ū
imethylphthalate .	12	Ū
,4-Dinitrophenol	62	Ū
.2-Diphenyl hydrazine	100	Ü
,4-Dinitrotoluene	12	ΙŪ
,6-Dinitrotoluene	12	Ū
i-n-octylphthalate luoranthene	12	U
luoranthene 'luorene	12	Ū
lexachlorobenzene	12	Ū
avachi exempte 44	12	Ū
lexachlorobutadiene	12	Ŭ
lexachlorocyclopentadiene	12	Ŭ
exachloroethane	12	ŭ

DILUTION FACTOR = 1.0 EXTRACTION VOLUME = 800 ML

#### BASE/NEUTRAL/ACID EXTRACTABLES

LAB NAME JOB NO.

RECRA ENVIRONMENTAL INC.

91-3386

SAMPLE NO. MW-8

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/11 ANALYSIS DATE 12/02/21

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Indeno(1,2,3-cd)pyrene	12	Ū
Isophorone	12	۱ŭ
2-Methyl-4,6-dinitrophenol	62	Ŭ
Naphthalene	12	ľŬ
Nitrobenzene	12	Ū
2-Nitrophenol	12	Įΰ
-Nitrophenol	62	ט
V-nitrosodi-n-propylamine V-Nitrosodimethylamine	12	U
-withosodimethylamine -Nitrosodiphenylamine	12	U
Pentachlorophenol	12	ט
Phenanthrene	62	ש
henol	12	ד -
yrene	12	ט
,2,4-Trichlorobenzene	12	ַ
2,4,6-Trichlorophenol	12 12	Ü

DILUTION FACTOR = 1.0 EXTRACTION VOLUME = 800 ML

## RADIAN CORPORATION METHOD 8270 - SELECTED SEMIVOLATILE ORGANICS

LAB NAME RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE NO. MW-8

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/91 ANALYSIS DATE 12/02/91

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Hydroquinone	12	U

DILUTION FACTOR = 1.0 EXTRACTION VOLUME = 800 ML

LAB NAME JOB NO.

RECRA ENVIRONMENTAL INC.

91-3386

SAMPLE NO. MW-8

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/9 ANALYSIS DATE 12/02/9

COMPOUND	RESULT	0
Internal Standards		
(†Recovery) 1,4-Dichlorobenzene-D4 Naphthalene-D8 Acenaphthene-D10 Phenanthrene-D10 Chrysene-D12 Perylene-D12	88 86 86 83 70 74	
Surrogates (†Recovery)	:	
2-Fluorophenol Phenol-D5 2,4,6-Tribromophenol Nitrobenzene-D5	65 45 94	
2-Fluorobiphenyl Terphenyl-D14	88 89 98	

DATA FROM FILE: 7185M - 90a45 205 to 2020 accounted: 12/02/91 21:14:00 TOOLS 21860 #3 SOMPLE: NWO JOB 0386 AP14450 5% CONDS.: AUTOSANFLR 150N management of the control of the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second seco £ 9332.) 61111 INTERNAL STANDARD SURROGATE J: 11 ा ३० १.४ का के के किस सिंह कि CS20 HITROBEHEERE DS SURROGATE CS40 NOPHTHALENE DS INTERNAL STANDARD 11341 -------- 0525 2-F100R08TF49TML SUPPOBLITE 15:40 CISO ACCMAPATHERE DIO INTERNAL STANDRO 0055 254-6- PRIBRONOPHENOL SURROGATE CIEC BHEHAUTHEONE DOD THITERHAL STANDARD 5133 1111 0500 TERPARAMA DIA SURFIGGATE OTTO CHRYSTAL 102 THIEFBAL STANDARD 1111 :: . CLUS FURNITIES OF California Statistics

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#### ANALYTICAL RESULTS

### GAS CHROMATOGRAPHY/MASS SPECTROMETRY EXTRACTABLE LIBRARY COMPARISON SEARCH

SAMPLE I.D.:MW-8

JOB#:91-3386.16

FILE: 7186W

scan #	COMPOUND NAME	ESTIMATED CONCENTRATION (UNITS= UG/L)

LAB NAME RECRA ENVIRONMENTAL INC.

JOB NO. 91-3386

SAMPLE NO. MW-9

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/91 ANALYSIS DATE 12/02/91

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Acenaphthene	12	U
Acenaphthylene	12	Ü
Anthracene	12	Ü
Benzo(a)anthracene	12	ğ
Benzo(b) fluoranthene	12	ğ
Benzo(k) fluoranthene	12	ä
Benzo (a) pyrene	12	מ
Benzo(g,h,i)perylene	12	15
Benzidine	100	Ü
Bis(2-chloroethyl)ether	12	Ü
Bis (2-chlorethoxy) methane	12	ğ
Bis (2-chloroisopropyl) ether	12	<b>8</b> -
Bis (2-ethylhexyl) phthalate	12	ŭ
-Bromophenylphenylether	12	מ
Sutyl benzyl phthalate	12	ğ
-Chloro-3-methylphenol	12	15
-Chloronaphthalene	12	ם
2-Chlorophenol	12	Ü
-Chlorophenylphenylether	12	ļ
Chrysene	12	ט
Dibenzo(a,h)anthracene	12	ä
Di-n-butyl phthalate	12	d
1,2-Dichlorobenzene	12	lg
1,3-Dichlorobenzene	12	ğ
4-Dichlorobenzene	12	
3,3'-Dichlorobenzidine	25	ַט
4-Dichlorophenol	12	ប្ត
iethylphthalate	12	מ
,4-Dimethylphenol		ū
imethylphthalate	12	ū
,4-Dinitrophenol	12	ט
,2-Diphenyl hydrazine	62 100	ជ្ជ
,4-Dinitrotoluene	100	ם
,6-Dinitrotoluene	12	שׁ
i-n-octylphthalate	12	Ü
'luoranthene	12	a a
luorene	12	ü
exachlorobenzene	12	ט
exachlorobutadiene	12	l u
lexachlorocyclopentadiene	12	l b
lexachloroethane	12	l u

DILUTION FACTOR = 1.0 EXTRACTION VOLUME = 800 ML

#### BASE/NEUTRAL/ACID EXTRACTABLES

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE NO. MW-9

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/91 ANALYSIS DATE 12/02/9

COMPOUND (Units of Measure = UG/L )	RESULT	Q	7
Indeno(1,2,3-cd)pyrene	12	U	7
Isophorone	12	Ιŭ	ł
2-Methyl-4,6-dinitrophenol	62	15	
Naphthalene	12	ŭ	
Nitrobenzene	12	Ϊ́σ	
2-Nitrophenol	12	lä	1
4-Nitrophenol	62	10	1
N-nitrosodi-n-propylamine	12	Ü	1
N-Nitrosodimethylamine	12	Ü	
N-Nitrosodiphenylamine	12	- ,	
Pentachlorophenol	12	U	1
Phenanthrene	62	ט	1
Phenol	12	<u>u</u> -	ı
Pyrene	12	ש	1
1,2,4-Trichlorobenzene	12	Ū	1
2,4,6-Trichlorophenol	12	Ū	ŀ
-1410 111010hienot	12	ט	ı

DILUTION FACTOR = 1.0 EXTRACTION VOLUME = 800 ML

LAB NAME RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE NO. MW-9

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/91 ANALYSIS DATE 12/02/91

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Hydroquinone	12	Ū

DILUTION FACTOR = 1.0 EXTRACTION VOLUME = 800 ML

### 7

#### RADIAN CORPORATION AQUEOUS MATRIX METHOD 625

#### BASE/NEUTRAL/ACID EXTRACTABLES

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE NO. MW-9

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/61 ANALYSIS DATE 12/02/14

COMPOUND	RESULT	Q
Internal Standards		
(*Recovery) 1,4-Dichlorobenzene-D4 Naphthalene-D8 Acenaphthene-D10 Phenanthrene-D10 Chrysene-D12 Perylene-D12	106 103 105 110 89 98	
Surrogates	· ·	
(*Recovery) 2-Fluorophenol Phenol-D5	46 33	-
2,4,6-Tribromophenol Nitrobenzene-D5 2-Fluorobiphenyl Terphenyl-D14	46 60 66 79	

SCANS 355 TO 2520 ACOUJRED: 12/02/91 22:04:00

DATA FROM FILE: 7187M

CHLI: 7187W #3 SAMPLE: MM9 JOB 3886 AP14454 55 COMDS.: AUTOSANFLR 150N 63232.) 1111 CT30 154-01CHEOROBERZENE D4 8: 23 INTERNAL STATUTARD 0820 HITROBEHZENE 05 SURROGATE CI40 NAPHTHALENE DS INTERNAL STANDARD TH HA CS25 2-FLUOROBIPHENYL SUPROGATE 16:40 CISO ACEMAPHTHENE DIO INTERNAL STANDED CS55 2,4,6-TRIBROMOPHENOL SURROGATE CIGO PHENANTHRENE DIO INTERNAL STANDARD 1500 , '5; (u) CS30 TEFFHENYL D14 SURROGATE CITO CHRYSIENE DIZ INTERNAL STANDARD 1.11.11.1 .;;::: CL75 PERMINE 012 HUSBORA STARDARD

### GAS CHROMATOGRAPHY/MASS SPECTROMETRY EXTRACTABLE LIBRARY COMPARISON SEARCH

SAMPLE I.D.:MW-9

JOB#:91-3386.15

FILE: 7187W

SCAN #	COMPOUND NAME	ESTIMATED CONCENTRATION (UNITS= UG/L)
860	OXYGENATED COMPOUND	13

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#### BASE/NEUTRAL/ACID EXTRACTABLES

LAB NAME RECRA ENVIRONMENTAL INC.

JOB NO. 91-3386

SAMPLE NO. MW-10

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/91 ANALYSIS DATE 12/02/91

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Acenaphthene Acenaphthylene Anthracene Benzo(a) anthracene Benzo(b) fluoranthene Benzo(b) fluoranthene Benzo(a) pyrene Benzo(a) pyrene Benzo(a,h,i) perylene Benzidine Bis(2-chloroethyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Butyl benzyl phthalate 4-Chloro-3-methylphenol 2-Chloronaphthalene 2-Chlorophenol 4-Chlorophenol 4-Chlorophenylphenylether Chrysene Dibenzo(a,h) anthracene Di-n-butyl phthalate 1,2-Dichlorobenzene 1,3-Dichlorobenzene 1,4-Dichlorobenzene 1,4-Dichlorobenzene 2,4-Dichlorophenol Diethylphthalate 2,4-Dinitrophenol Dimethylphthalate 2,4-Dinitrotoluene 2,6-Dinitrotoluene Di-n-octylphthalate Fluoranthene Fluorene	10 10 10 10 10 10 10 10 10 10 10 10 10 1	ממממממממממממממממממממממממממ Q
Hexachlorobenzene Hexachlorobutadiene Hexachlorocyclopentadiene Hexachloroethane	10 10 10 10	מממ

DILUTION FACTOR = 1.0

EXTRACTION VOLUME = 1000 ML

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE NO. MW-10

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/97 ANALYSIS DATE 12/02/55

COMPOUND (Units of Measure = UG/L )	RESULT	Q	
Indeno(1,2,3-cd)pyrene	10	U	┪
Isophorone	10	Ŭ	-
2-Methyl-4,6-dinitrophenol	50	ΙŬ	-
Naphthalene	10	Ŭ	- 1
Nitrobenzene	10	Ū	-
2-Nitrophenol	10	Ū	1
4-Nitrophenol	50	Ŭ	ļ
N-nitrosodi-n-propylamine	10	U	- 1
N-Nitrosodimethylamine	10	Ū	- [
N-Nitrosodiphenylamine	10	ט	1
Pentachlorophenol	50	Ū	
Phenanthrene	10	Ū_	ı
Phenol	10	Ü	1
Pyrene	10	Ŭ	
1,2,4-Trichlorobenzene	10	ĺΰ	-
2,4,6-Trichlorophenol	10	Ŭ	

DILUTION FACTOR = 1.0

EXTRACTION VOLUME = 1000 ML

275

## RADIAN CORPORATION METHOD 8270 - SELECTED SEMIVOLATILE ORGANICS

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE NO. MW-10

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/91 ANALYSIS DATE 12/02/91

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Hydroquinone	10	ט

DILUTION FACTOR = 1.0 EXTRACTION VOLUME = 1000 ML

LAB NAME JOB NO.

RECRA ENVIRONMENTAL INC. 91-3386

SAMPLE NO. MW-10

SAMPLE DATE 11/15/99 EXTRACTION DATE 11/22/99 ANALYSIS DATE 12/02/91

COMPOUND	RESULT	Q
Internal Standards		
(*Recovery)		
1,4-Dichlorobenzene-D4 Naphthalene-D8	114 110	
Acenaphthene-D10	112	
Phenanthrene-D10	108	
Chrysene-D12 Perylene-D12	89	
retyteme-D12	98	
Surrogates		
(tRecovery)		-
2-Fluorophenol	48	•
Phenol-D5 2,4,6-Tribromophenol	29	
Nitrobenzene-D5	76 71	
2-Fluorobiphenyl	69	
Terphenyl-D14	78	

Onto FROM FILE: 71880 - SCHUS - 355-10 2520 - HCCOURED: 12/02/91 22:55:00 CALL: 7180H #8 SAMPLE: MAIO JOB 3386 APT4456 57 CHOS.: AUTOSAMPLE 150M 100.05 6 65792.5 1111 CHEST HAT PROPOSEDENE OF 8:20 THTERNAL STANDARD 0520 HUTHOREHZENE OS SURROGHTE 0140 IMPRIMALENC DS INTERNAL STANDARD Linn US25 2-FLUOSOBIFHENYL SURROGATE 16:40 (150) WEHAPHTHENE DIO INTERHAL STANDED CSSS 2.4.6-TREBRONGPHENOL SUFFOGATE CTEO PHENDRINGENE DIO INTERNAL STANDARD 15.111 . 1911 ASSO RECORDS DIA SURROGATE THE OPERATE DIS THIERWAL STANDARD 141 18.1 1 18 .00 EDWARD BUT DERENEL STOROGEO

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#### ANALYTICAL RESULTS

### GAS CHROMATOGRAPHY/MASS SPECTROMETRY EXTRACTABLE LIBRARY COMPARISON SEARCH

SAMPLE I.D.:MW-10

JOB#:91-3386.17

FILE: 7188W

SCAN #	COMPOUND NAME	ESTIMATED CONCENTRATION (UNITS= UG/L)

LAB NAME JOB NO. RECRA ENVIRONMENTAL INC.

91-3386

SAMPLE NO. FIELD BLANK

**SAMPLE DATE 11/15/91** EXTRACTION DATE 11/22/91 ANALYSIS DATE 12/02/91

COMPOUND		<del></del>
(Units of Measure = UG/L )	RESULT	Q
Acenaphthene	10	U
Acenaphthylene	10	Ü
Anthracene	10	Ū
Benzo (a) anthracene	10	Ū
Benzo (b) fluoranthene	10	U
Benzo(k) fluoranthene	10	ט
Benzo (a) pyrene	10	Ū
Benzo(g,h,i)perylene	10	Ū
Benzidine	80	Ū
Bis (2-chloroethyl) ether	10	Ū
Bis (2-chlorethoxy) methane	10	Ū
Bis (2-chloroisopropyl) ether	10	Ü
Bis (2-ethylhexyl) phthalate	10	Ū
4-Bromophenylphenylether	10	ט
Butyl benzyl phthalate	10	Ū
4-Chloro-3-methylphenol	10	Ū
2-Chloronaphthalene	10	Ū
2-Chlorophenol	10	U
4-Chlorophenylphenylether	10	U
Chrysene	10	ט
Dibenzo(a, h) anthracene	10	ľŪ
Di-n-butyl phthalate	10	U
1,2-Dichlorobenzene	10	Ū
1,3-Dichlorobenzene 1,4-Dichlorobenzene	10	U
3,3'-Dichlorobenzidine	10	Ŭ
2,4-Dichlorophenol	20	ם
Diethylphthalate	10	U
2,4-Dimethylphenol	10	וטו
Dimethylphthalate	10	U
2,4-Dinitrophenol	10	U
1,2-Diphenyl hydrazine	50	ט
2,4-Dinitrotoluene	80	Ü
2,6-Dinitrotoluene	10	שן
Di-n-octylphthalate	10	ט
Fluoranthene	10	ַ
Fluorene	10	ט
Hexachlorobenzene	10	ש
Hexachlorobutadiene	10	ש
Hexachlorocyclopentadiene	10	ט
Hexachloroethane	10	Ü
	10	ָ ע

DILUTION FACTOR = 1.0 EXTRACTION VOLUME = 1000 ML

BASE/NEUTRAL/ACID EXTRACTABLES

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE NO. FIELD BLANK

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/91 ANALYSIS DATE 12/02/91

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Indeno(1,2,3-cd)pyrene	10	U
Isophorone	10	ΙŬ
2-Methyl-4,6-dinitrophenol	50	Ŭ
Naphthalene	10	Ŭ
Vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitrobenzene vitro	. 10	ĺΰ
-Nitrophenol	10	Ü
-Nitrophenol	50	Ū
-nitrosodi-n-propylamine -Nitrosodimethylamine	10	Ū
-Nitrosodimethylamine	10	Ŭ
-Nltrosodiphenvlamine	10	Ū
entachlorophenol	50	Ū
henanthrene	10	υ¯
henol	10	Ū
yrene	10	ΙŪ
,2,4-Trichlorobenzene	10	Ū
,4,6-Trichlorophenol	10	lŭ

DILUTION FACTOR = 1.0 EXTRACTION VOLUME = 1000 ML

## RADIAN CORPORATION METHOD 8270 - SELECTED SEMIVOLATILE ORGANICS

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE NO. FIELD BLANK

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/91 ANALYSIS DATE 12/02/91

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Hydroquinone	10	ប

DILUTION FACTOR = 1.0 EXTRACTION VOLUME = 1000 ML

LAB NAME

RECRA ENVIRONMENTAL INC.

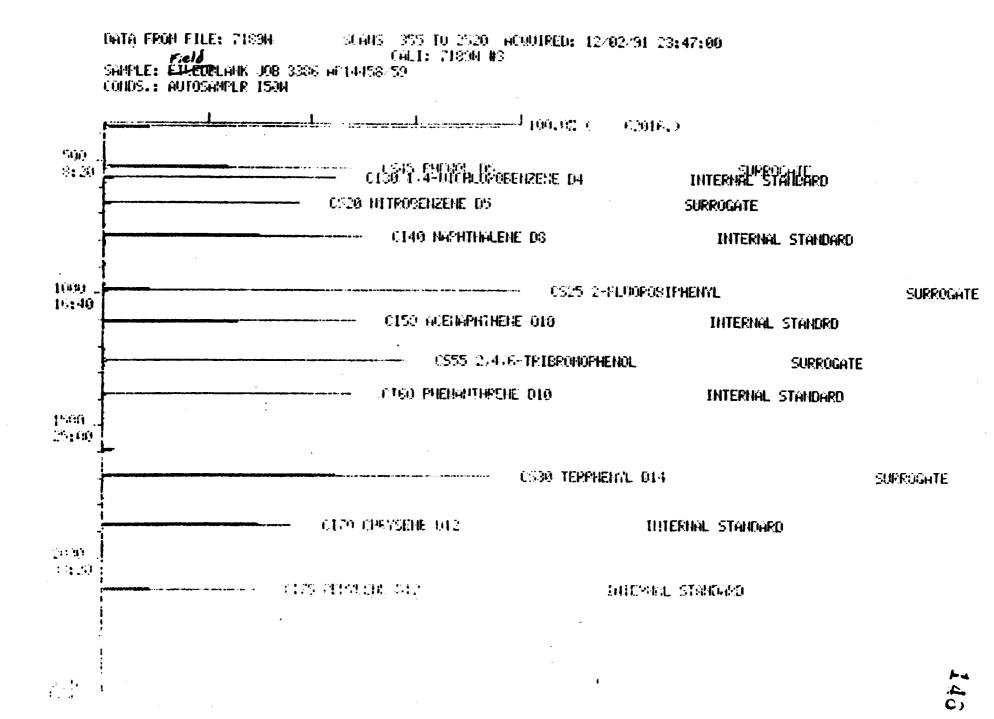
JOB NO.

91-3386

SAMPLE NO. FIELD BLANK

SAMPLE DATE 11/15/9~ EXTRACTION DATE 11/22/9 ANALYSIS DATE 12/02/9:

COMPOUND	RESULT	0
Internal Standards		
(*Recovery) 1,4-Dichlorobenzene-D4 Naphthalene-D8 Acenaphthene-D10 Phenanthrene-D10 Chrysene-D12 Perylene-D12 Surrogates	117 115 117 113 93 99	
(*Recovery) 2-Fluorophenol Phenol-D5 2,4,6-Tribromophenol Nitrobenzene-D5 2-Fluorobiphenyl Terphenyl-D14	44 28 70 54 57	-



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#### ANALYTICAL RESULTS

### GAS CHROMATOGRAPHY/MASS SPECTROMETRY EXTRACTABLE LIBRARY COMPARISON SEARCH

SAMPLE I.D.: FIELD BLANK

JOB#:91-3386.18

FILE: 7189W

SCAN #	COMPOUND NAME	ESTIMATED CONCENTRATION (UNITS= UG/L)

## RADIAN CORPORATION AQUEOUS MATRIX METHOD 625

BASE/NEUTRAL/ACID EXTRACTABLES

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE NO. TRIP BLANK

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/91 ANALYSIS DATE 12/03/91

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Acenaphthene Acenaphthylene Anthracene Benzo(a) anthracene Benzo(b) fluoranthene Benzo(b) fluoranthene Benzo(a) pyrene Benzo(a) pyrene Benzo(a) pyrene Benzidine Bis (2-chloroethyl) ether Bis (2-chloroisopropyl) ether Bis (2-chloroisopropyl) ether Bis (2-chloroisopropyl) ether Bis (2-ethylhexyl) phthalate 4-Bromophenylphenylether Butyl benzyl phthalate 4-Chloro-3-methylphenol 2-Chloronaphthalene 2-Chlorophenol 4-Chlorophenylphenylether Chrysene Dibenzo(a,h) anthracene Di-n-butyl phthalate 1,2-Dichlorobenzene 1,3-Dichlorobenzene 1,4-Dichlorobenzene 3,3'-Dichlorobenzidine 2,4-Dinitrotobenzene 2,4-Dimethylphenol Dimethylphthalate 2,4-Dinitrotoluene 2,4-Dinitrotoluene 2,6-Dinitrotoluene Biorene Hexachlorobenzene Hexachlorobenzene Hexachlorobenzene Hexachlorobenzene Hexachlorobenzene Hexachlorobenzene Hexachlorobenzene Hexachlorobenzene Hexachlorobenzene Hexachlorobenzene	10 10 10 10 10 10 10 10 10 10 10 10 10 1	ם מפפפפפפפפפפפפפפפפפפפפפפפפפפפפפפפפפפפפ

DILUTION FACTOR = 1.0 EXTRACTION VOLUME = 1000 ML

### RADIAN CORPORATION AQUEOUS MATRIX METHOD 625 BASE/NEUTRAL/ACID EXTRACTABLES

LAB NAME JOB NO.

RECRA ENVIRONMENTAL INC. 91-3386

SAMPLE NO. TRIP BLANK

SAMPLE DATE 11/15/9 EXTRACTION DATE 11/22/9 ANALYSIS DATE 12/03/91

RESULT	Q
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	RESULT  10 10 50 10 10 10 10 10 10 10 10 10 10 10 10 10

DILUTION FACTOR = 1.0 EXTRACTION VOLUME = 1000 ML

#### RADIAN CORPORATION METHOD 8270 - SELECTED SEMIVOLATILE **ORGANICS**

2017年19日1日 1995年 1995年

RECRA ENVIRONMENTAL INC. 91-3386

SAMPLE NO. TRIP BLANK

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/91 ANALYSIS DATE 12/03/91

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Hydroquinone	10	ט

DILUTION FACTOR = 1.0 EXTRACTION VOLUME = 1000 ML

## RADIAN CORPORTATION AQUEOUS MATRIX METHOD 625 BASE/NEUTRAL/ACID EXTRACTABLES

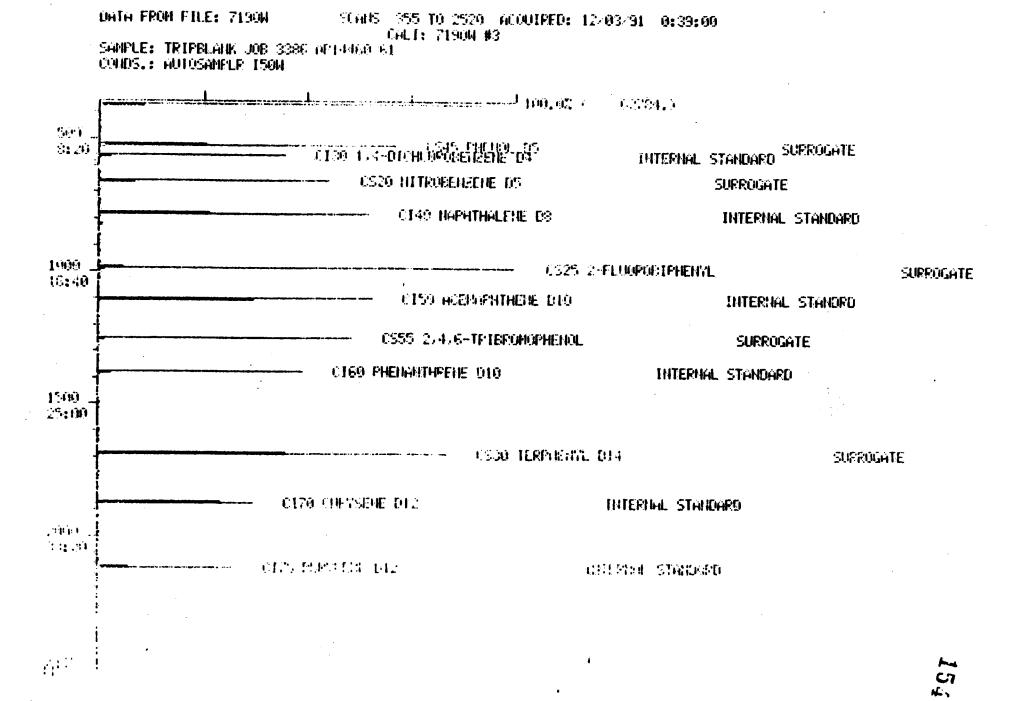
LAB NAME JOB NO.

RECRA ENVIRONMENTAL INC. 91-3386

SAMPLE NO. TRIP BLANK

SAMPLE DATE 11/15/9= EXTRACTION DATE 11/22/9 ANALYSIS DATE 12/03/9=

COMPOUND	RESULT	Q	
Internal Standards			
(*Recovery) 1,4-Dichlorobenzene-D4 Naphthalene-D8 Acenaphthene-D10 Phenanthrene-D10 Chrysene-D12	104 103 105 105 83		
Perylene-D12 Surrogates	94		
(*Recovery) 2-Fluorophenol Phenol-D5 2,4,6-Tribromophenol Nitrobenzene-D5 2-Fluorobiphenyl Terphenyl-D14	50 34 63 67 70 79	-	



#### ANALYTICAL RESULTS

#### GAS CHROMATOGRAPHY/MASS SPECTROMETRY EXTRACTABLE LIBRARY COMPARISON SEARCH

SAMPLE I.D.:TRIP BLANK

JOB#:91-3386.19

FILE: 7190W

SCAN #	COMPOUND NAME	ESTIMATED CONCENTRATION (UNITS= UG/L)

#### RADIAN CORPORATION AQUEOUS MATRIX METHOD 625

#### BASE/NEUTRAL/ACID EXTRACTABLES

LAB NAME JOB NO.

RECRA ENVIRONMENTAL INC.

91-3386

DESC

SEMIVOLATILE METHOD BLANK

SAMPLE NO. SBLK87

EXTRACTION DATE 11/22/91 ANALYSIS DATE 11/30/91

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Acenaphthene	10	U
Acenaphthylene	10	Ü
Anthracene	1 10	ŭ
Benzo(a) anthracene	10	ğ
Benzo(b) fluoranthene	1 10	Ιŭ
Benzo(k) fluoranthene	10	Ü
Benzo(a) pyrene	1 10	ŭ
Benzo(g,h,i)perylene	10	117
Benzidine	80	מ
Bis (2-chloroethyl) ether	10	ŭ
Bis (2-chlorethoxy) methane	1 10	Ŭ -
B1s(2-chloroisopropyl)ether	10	ี ซ
Bis(2-ethylhexyl)phthalate	10	ŭ
4-Bromophenylphenylether	10	m
Butyl benzyl phthalate	i	מ
4-Chloro-3-methylphenol	ا أَنَّ	177
2-Chloronaphthalene	1 10	מ
2-Chlorophenol	10	Ü
4-Chlorophenylphenylether	10	Ŭ
Chrysene	1 10	ğ
Dibenzo (a, h) anthracene	1 10	Ü
Di-n-butyl phthalate	10	Ŭ
1,2-Dichlorobenzene	10	Ŭ
1,3-Dichlorobenzene	iŏ	Ιŭ
1,4-Dichlorobenzene	10	Ŭ
3,3'-Dichlorobenzidine	20	Ü
2,4-Dichlorophenol	10	บั
Diethylphthalate	10	Ŭ
2,4-Dimethylphenol	10	Ü
Dimethylphthalate	1 10	III
2,4-Dinitrophenol	50	מ
1,2-Diphenyl hydrazine	80	Ü
2,4-Dinitrotoluene	1 10	Ü
2,6-Dinitrotoluene	1 10	Ü
Di-n-octylphthalate	10	Ŭ
Fluoranthene	1 10	Ŭ
Fluorene	l	Ŭ
Hexachlorobenzene	10	Ü
Hexachlorobutadiene	1 10	Ü
Hexachlorocyclopentadiene	10	Ü
Hexachloroethane	10	Ιŭ

DILUTION FACTOR = 1.0 EXTRACTION VOLUME = 1000 ML

## RADIAN CORPORATION AQUEOUS MATRIX METHOD 625

#### BASE/NEUTRAL/ACID EXTRACTABLES

LAB NAME JOB NO.

RECRA ENVIRONMENTAL INC.

91-3386

DESC

SEMIVOLATILE METHOD BLANK

SAMPLE NO. SBLK87

EXTRACTION DATE 11/22/91 ANALYSIS DATE 11/30/91

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Indeno(1,2,3-cd)pyrene	10	ט
Isophorone	10	Ū
2-Methyl-4,6-dinitrophenol	50	Ŭ
Naphthalene	10	Ū
Nitrobenzene	10	Ü
2-Nitrophenol	10	Ū
4-Nitrophenol	50	Ū
N-nitrosodi-n-propylamine	10	Ū
N-N1CTOSOCIMethylamine	10	ΙŪ
N-Nitrosodiphenylamine	10	Ū
Pentachlorophenol	50	Ū-
Phenanthrene	10	Ū
Phenol	10	Ū
Pyrene	10	lσ
1,2,4-Trichlorobenzene	10	Ū
2,4,6-Trichlorophenol	10	Ŭ

DILUTION FACTOR = 1.0

EXTRACTION VOLUME = 1000 ML

## RADIAN CORPORATION METHOD 8270 - SELECTED SEMIVOLATILE ORGANICS

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

DESC

SEMIVOLATILE METHOD BLANK

SAMPLE NO. SBLK87

EXTRACTION DATE 11/22/91 ANALYSIS DATE 11/30/91

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Hydroquinone	10	Ū

DILUTION FACTOR = 1.0 EXTRACTION VOLUME = 1000 ML

# RADIAN CORPORATION AQUEOUS MATRIX METHOD 625 BASE/NEUTRAL/ACID EXTRACTABLES

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

DESC

SEMIVOLATILE METHOD BLANK

SAMPLE NO. SBLK87

EXTRACTION DATE 11/22/97 ANALYSIS DATE 11/30/5

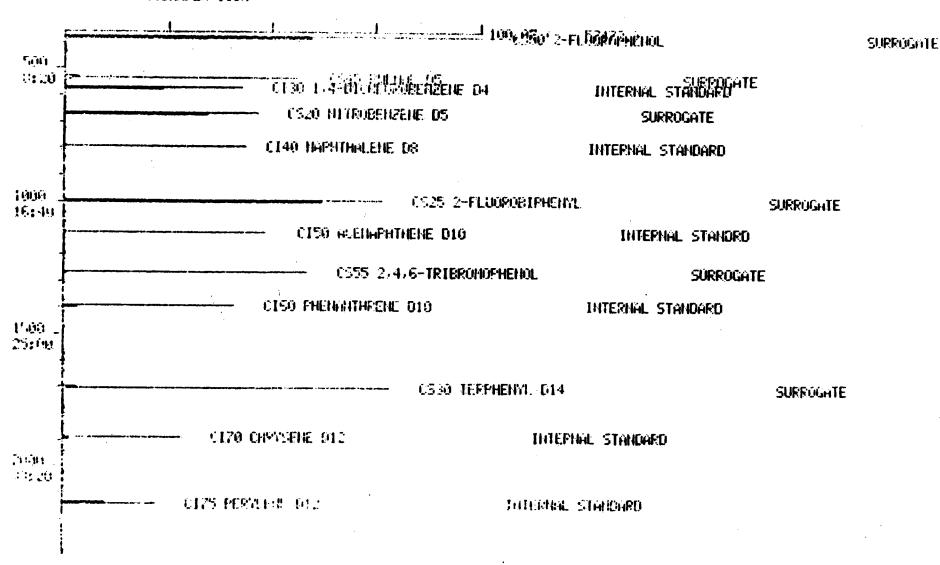
COMPOUND	RESULT		
Internal Standards		<del>-  </del>	
(*Recovery)	j		
1,4-Dichlorobenzene-D4	89		
Naphthalene-D8	84	}	
Acenaphthene-D10 Phenanthrene-D10	86		
Chrysene-D12	87 63		
Perylene-D12	68		
Surrogates			
(*Recovery)		<b>-</b>	
2-Fluorophenol	57		
Phenol-D5	37		
2,4,6-Tribromophenol Nitrobenzene-D5	85		
2-Fluorobiphenyl	73 68		
Terphenyl-D14	115	1	

that I have been been been been been built to be a finished by the first one of the first one of the first one

DHTA FROM FILE: 7159N SCHMS 069 TO 2520 ACCUIRED: 11/09/91 17:55:00 Col. I: 7150W #3

SAMPLE: SELKS7 JOB 3386 4814404.25

CONDS.: AUTOSAMPLE 150N



#### ANALYTICAL RESULTS

## GAS CHROMATOGRAPHY/MASS SPECTROMETRY EXTRACTABLE LIBRARY COMPARISON SEARCH

SAMPLE I.D.:SBLK 87

JOB#:91-3386.20

FILE: 7159W

SCAN #	COMPOUND NAME	ESTIMATED CONCENTRATION (UNITS- UG/L)

METALS DATA



LAB NAME JOB NO.

RECRA ENVIRONMENTAL INC.

91-3386

SAMPLE NO. MW-1

SAMPLE DATE 11/15/91

COMPOUND	UNIT OF MEASURE		ANALYSIS DATE	RESULT	Q
Total Chromium	MG/L	218.1	11/25/91	0.01	מש
Total Silver	MG/L	272.1	11/25/91	0.01	

LAB NAME RECRA ENVIRONMENTAL INC.
JOB NO. 91-3386
DESC MW-1 FIELD DUP
SAMPLE NO. FIELD DUP

SAMPLE DATE 11/15/91

COMPOUND	UNIT OF MEASURE		ANALYSIS DATE	RESULT	Q
Total Chromium Total Silver	MG/L MG/L	218.1 272.1	11/25/91 11/25/91	0.011	บ

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

**SAMPLE DATE 11/15/91** 

SAMPLE NO. MW-2

COMPOUND	UNIT OF MEASURE		ANALYSIS DATE	RESULT	Q
Total Chromium Total Silver	MG/L MG/L	218.1 272.1	11/25/91 11/25/91	0.064 0.01	<b>ט</b>

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE DATE 11/15/91

SAMPLE NO. MW-3

COMPOUND	UNIT OF MEASURE		ANALYSIS DATE	RESULT	Q
Total Chromium	MG/L	218.1	11/25/91	0.03	U
Total Silver	MG/L	272.1	11/25/91	0.01	

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE DATE 11/15/91

SAMPLE NO. MW-4

COMPOUND	UNIT OF MEASURE	METHOD NUMBER	ANALYSIS DATE	RESULT	Q
Total Chromium	MG/L	218.1	11/25/91	0.093	-
Total Silver	MG/L	272.1	11/25/91	0.013	

28

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LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE DATE 11/15/91

SAMPLE NO. MW-5

COMPOUND	UNIT OF MEASURE		ANALYSIS DATE	RESULT	Q
Total Chromium Total Silver		218.1 272.1	11/25/91 11/25/91	0.02 0.01	U

LAB NAME JOB NO.

RECRA ENVIRONMENTAL INC. 91-3386

SAMPLE NO. MW-6

SAMPLE DATE 11/15/91-

COMPOUND	UNIT OF MEASURE		ANALYSIS DATE	RESULT	Q.
Total Chromium Total Silver	MG/L MG/L	218.1 272.1	11/25/91 11/25/91	0.13 0.01	

LAB NAME JOB NO.

RECRA ENVIRONMENTAL INC.

91-3386

SAMPLE NO. MW-7

SAMPLE DATE 11/15/91

COMPOUND	UNIT OF MEASURE		ANALYSIS DATE	RESULT	Q
Total Chromium	MG/L	218.1	11/25/91	0.065	
Total Silver	MG/L	272.1	11/25/91	0.01	

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE NO. MW-8

SAMPLE DATE 11/15/91

UNIT OF MEASURE		ANALYSIS DATE	RESULT	
MG/L MG/L	218.1 272.1	11/25/91 11/25/91	0.01	ָ ט

28

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RECRA ENVIRONMENTAL INC. 91-3386

SAMPLE DATE 11/15/91

SAMPLE NO. MW-9

COMPOUND	UNIT OF MEASURE		ANALYSIS DATE	RESULT	Q
Total Chromium Total Silver	MG/L MG/L	218.1 272.1	11/25/91 11/25/91	0.01	ŭ

RECRA ENVIRONMENTAL INC.

91-3386

SAMPLE NO. MW-10

SAMPLE DATE 11/15/91

COMPOUND	UNIT OF MEASURE		ANALYSIS DATE	RESULT	Q :
Total Chromium Total Silver		218.1 272.1	11/25/91 11/25/91	0.01 0.011	ט ־־

RECRA ENVIRONMENTAL INC. 91-3386

SAMPLE DATE 11/15/91

SAMPLE NO. FIELD BLANK

COMPOUND	UNIT OF MEASURE	METHOD NUMBER	ANALYSIS DATE	RESULT	Q
Total Chromium	MG/L	218.1	11/25/91	0.016	U
Total Silver	MG/L	272.1	11/25/91	0.01	

LAB NAME

RECRA ENVIRONMENTAL INC. 91-3386

JOB NO.

SAMPLE DATE 11/15/91-

SAMPLE NO. TRIP BLANK

COMPOUND	UNIT OF MEASURE		ANALYSIS DATE	RESULT	
Total Chromium Total Silver	MG/L MG/L	218.1 272.1	11/25/91 11/25/91	0.01	ם ם

LAB NAME JOB NO.

RECRA ENVIRONMENTAL INC. 91-3386

SAMPLE NO. METHOD BLANK

COMPOUND	UNIT OF MEASURE		ANALYSIS DATE	RESULT	Q
Total Chromium Total Silver	MG/L MG/L	218.1 272.1	11/25/91 11/25/91	0.01	ŭ

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE DATE 11/15/91

SAMPLE NO. MW-1

COMPOUND (Units of Measure = MG/L )	METHOD NUMBER	ANALYSIS DATE	RESULT	Q
Hexavalent Chromium	7195	11/16/91	0.01	ט -

LAB NAME JOB NO. DESC RECRA ENVIRONMENTAL INC.

JOB NO. 91-3386
DESC MW-1 FIELD DUP
SAMPLE NO. FIELD DUP

**SAMPLE DATE 11/15/91** 

COMPOUND (Units of Measure = MG/L )	METHOD NUMBER	ANALYSIS DATE	RESULT	Q
Hexavalent Chromium	7195	11/16/91	0.01	U

LAB NAME JOB NO.

RECRA ENVIRONMENTAL INC. 91-3386

SAMPLE DATE 11/15/5

SAMPLE NO. MW-2

COMPOUND (Units of Measure = MG/L )	METHOD NUMBER	ANALYSIS DATE	RESULT	Q
Hexavalent Chromium	7195	11/16/91	0.016	

LAB NAME JOB NO.

RECRA ENVIRONMENTAL INC.

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91-3386

SAMPLE DATE 11/15/91

SAMPLE NO. MW-3

COMPOUND (Units of Measure = MG/L )	METHOD NUMBER	ANALYSIS DATE	RESULT	Q
Hexavalent Chromium	7195	11/16/91	0.01	U

146 -

RECRA ENVIRONMENTAL INC.

91-3386

SAMPLE DATE 11/15/94

SAMPLE NO. MW-4

COMPOUND (Units of Measure = MG/L )	METHOD NUMBER	ANALYSIS DATE	RESULT	0,
Hexavalent Chromium	7195	11/16/91	0.01	ט ־־

LAB NAME JOB NO.

RECRA ENVIRONMENTAL INC.

91-3386

SAMPLE NO. MW-5

SAMPLE DATE 11/15/91

COMPOUND (Units of Measure = MG/L )	METHOD NUMBER	ANALYSIS DATE	RESULT	Q
Hexavalent Chromium	7195	11/16/91	0.01	U

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE NO. MW-6

SAMPLE DATE 11/15/91

COMPOUND (Units of Measure = MG/L )	METHOD NUMBER	ANALYSIS DATE	RESULT	0_
Hexavalent Chromium	7195	11/16/91	0.01	U 🗀

LAB NAME JOB NO.

RECRA ENVIRONMENTAL INC. 91-3386

SAMPLE DATE 11/15/91

SAMPLE NO. MW-7

COMPOUND (Units of Measure = MG/L )	METHOD NUMBER	ANALYSIS DATE	RESULT	Q
Hexavalent Chromium	7195	11/16/91	0.028	

LAB NAME JOB NO.

RECRA ENVIRONMENTAL INC. 91-3386

SAMPLE DATE 11/15/94

SAMPLE NO. MW-8

COMPOUND (Units of Measure = MG/L )	METHOD NUMBER	ANALYSIS DATE	RESULT	0
Hexavalent Chromium	7195	11/16/91	0.01	U

## RADIAN CORPORATION AQUEOUS MATRIX SOLUBLE METALS

LAB NAME JOB NO.

RECRA ENVIRONMENTAL INC. 91-3386

SAMPLE NO. MW-9

SAMPLE DATE 11/15/91

COMPOUND (Units of Measure = MG/L )	METHOD NUMBER	ANALYSIS DATE	RESULT	Q
Hexavalent Chromium	7195	11/16/91	0.01	U

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE NO. MW-10

SAMPLE DATE 11/15/94

COMPOUND (Units of Measure = MG/L )	METHOD NUMBER	ANALYSIS DATE		
Hexavalent Chromium	7195	11/16/91	0.01	U .

146

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# RADIAN CORPORATION AQUEOUS MATRIX SOLUBLE METALS

LAB NAME JOB NO.

RECRA ENVIRONMENTAL INC. 91-3386

SAMPLE DATE 11/15/91

SAMPLE NO. FIELD BLANK

COMPOUND (Units of Measure = MG/L )	METHOD NUMBER	ANALYSIS DATE	RESULT	Q
Hexavalent Chromium	7195	11/16/91	0.01	บ

### RADIAN CORPORATION AQUEOUS MATRIX SOLUBLE METALS

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE NO. METHOD BLANK

COMPOUND (Units of Measure = MG/L )	METHOD NUMBER	ANALYSIS DATE	RESULT	03
Hexavalent Chromium	7195	11/16/91	0.01	ר ט

146

**.** 

WATER QUALITY DATA



LAB NAME JOB NO.

RECRA ENVIRONMENTAL INC. 91-3386

SAMPLE DATE 11/15/95

SAMPLE NO. MW-1

COMPOUND	UNIT OF MEASURE		ANALYSIS DATE	RESULT	C
Total Cyanide Total Rec. Petro. Hydrocarbons Formaldehyde	mg/l mg/l mg/l	9010 418.1	11/25/91 11/18/91 11/22/91	0.01 0.5 0.1	ם –

LAB NAME RECRA ENVIRONMENTAL INC.
JOB NO. 91-3386
DESC MW-1 FIELD DUP
SAMPLE NO. FIELD DUP

SAMPLE DATE 11/15/91

COMPOUND	UNIT OF MEASURE		ANALYSIS DATE	RESULT	Q
Total Cyanide Total Rec. Petro. Hydrocarbons Formaldehyde	mg/l mg/l mg/l	9010 418.1	11/25/91 11/18/91 11/22/91	0.01 0.61 0.11	บ

LAB NAME JOB NO.

RECRA ENVIRONMENTAL INC.

91-3386

SAMPLE DATE 11/15/91

SAMPLE NO. MW-2

COMPOUND	UNIT OF MEASURE		ANALYSIS DATE	RESULT	Q ,
Total Cyanide Total Rec. Petro. Hydrocarbons Formaldehyde	mg/l mg/l mg/l	9010 418.1	11/25/91 11/18/91 11/22/91	0.01 12 0.084	ָּט <u>:</u>

LAB NAME JOB NO.

RECRA ENVIRONMENTAL INC. 91-3386

SAMPLE NO. MW-3

**SAMPLE DATE 11/15/91** 

COMPOUND	UNIT OF MEASURE		ANALYSIS DATE	RESULT	Q
Total Cyanide Total Rec. Petro. Hydrocarbons Formaldehyde	mg/l mg/l mg/l	9010 418.1	11/25/91 11/18/91 11/22/91	0.11 0.5 0.26	Ū

195

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE DATE 11/15/91

SAMPLE NO. MW-4

COMPOUND	UNIT OF MEASURE		ANALYSIS DATE	RESULT	0.
Total Cyanide Total Rec. Petro. Hydrocarbons Formaldehyde	mg/l mg/l mg/l	9010 418.1	11/25/91 11/18/91 11/22/91	0.01 1.3 0.21	<b>v</b> -

LAB NAME JOB NO.

RECRA ENVIRONMENTAL INC.

91-3386

SAMPLE NO. MW-5

SAMPLE	DATE	11	/15	/91
		-		, , ,

COMPOUND	UNIT OF MEASURE		ANALYSIS DATE	RESULT	Q
Total Cyanide Total Rec. Petro. Hydrocarbons Formaldehyde	mg/l mg/l mg/l	9010 418.1	11/25/91 11/18/91 11/22/91	0.01 0.5 0.14	U U

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE NO. MW-6

SAMPLE DATE 11/15/91

COMPOUND	UNIT OF MEASURE		ANALYSIS DATE	RESULT	Q
Total Cyanide Total Rec. Petro. Hydrocarbons Formaldehyde	mg/1 mg/1 mg/1	9010 418.1	11/25/91 11/18/91 11/22/91	0.027 1.2 0.18	7

85

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LAB NAME

RECRA ENVIRONMENTAL INC. 91-3386

JOB NO.

SAMPLE DATE 11/15/91

SAMPLE NO. MW-7

COMPOUND	UNIT OF MEASURE		ANALYSIS DATE	RESULT	Q
Total Cyanide Total Rec. Petro. Hydrocarbons Formaldehyde	mg/l mg/l mg/l	9010 418.1	11/25/91 11/18/91 11/22/91	0.24 1.1 0.084	U

LAB NAME JOB NO.

RECRA ENVIRONMENTAL INC. 91-3386

SAMPLE DATE 11/15/91

SAMPLE NO. MW-8

COMPOUND	UNIT OF MEASURE		ANALYSIS DATE	RESULT	Q :
Total Cyanide Total Rec. Petro. Hydrocarbons Formaldehyde	mg/1 mg/1 mg/1	9010 418.1	11/25/91 11/18/91 11/22/91	0.017 5.2 0.084	U

LAB NAME JOB NO.

RECRA ENVIRONMENTAL INC. 91-3386

SAMPLE DATE 11/15/91

SAMPLE NO. MW-9

COMPOUND	UNIT OF MEASURE		ANALYSIS DATE	RESULT	Q
Total Cyanide Total Rec. Petro. Hydrocarbons Formaldehyde	mg/l mg/l mg/l	9010 418.1	11/25/91 11/18/91 11/22/91	0.01 1.5 0.084	บ บ

LAB NAME JOB NO.

RECRA ENVIRONMENTAL INC.

91-3386

SAMPLE NO. MW-10

SAMPLE DATE 11/15/91 7

COMPOUND	UNIT OF MEASURE		ANALYSIS DATE	RESULT	0
Total Cyanide Total Rec. Petro. Hydrocarbons Formaldehyde	mg/l mg/l mg/l	9010 418.1	11/25/91 11/18/91 11/22/91	0.01 0.5 0.09	90

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE DATE 11/15/91

SAMPLE NO. FIELD BLANK

COMPOUND	UNIT OF MEASURE		ANALYSIS DATE	RESULT	Q
Total Cyanide Total Rec. Petro. Hydrocarbons Formaldehyde	mg/1 mg/1 mg/1	9010 418.1	11/25/91 11/18/91 11/22/91	0.01 0.5 0.084	U U

LAB NAME JOB NO. RECRA ENVIRONMENTAL INC.

91-3386

SAMPLE NO. TRIP BLANK

SAMPLE DATE 11/15/91

COMPOUND	UNIT OF MEASURE		ANALYSIS DATE	RESULT	0
Total Cyanide Total Rec. Petro. Hydrocarbons Formaldehyde	mg/l mg/l mg/l	9010 418.1	11/25/91 11/18/91 11/22/91	0.01 0.53 0.084	ם _

LAB NAME JOB NO.

RECRA ENVIRONMENTAL INC. 91-3386

SAMPLE NO. METHOD BLANK

COMPOUND	UNIT OF MEASURE		ANALYSIS DATE	RESULT	Q
Total Cyanide Total Rec. Petro. Hydrocarbons Formaldehyde	mg/l mg/l mg/l	9010 418.1	11/25/91 11/18/91 11/22/91	0.01 0.5 0.084	ם מ

LAB NAME JOB NO.

RECRA ENVIRONMENTAL INC. 91-3386

SAMPLE DATE 11/15/91

SAMPLE NO. FIELD BLANK

COMPOUND	UNIT OF MEASURE		ANALYSIS DATE	RESULT	Q
Total Cyanide Total Rec. Petro. Hydrocarbons Formaldehyde	mg/l mg/l mg/l	9010 418.1	11/25/91 11/18/91 11/22/91	0.01 0.5 0.084	ם מ

### ORGANIC DATA COMMENT PAGE

Laboratory Name RECRA ENVIRONMENTAL, INC.

USEPA Defined Organic Data Qualifiers:

- U Indicates compound was analyzed for but not detected.
- J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed, or when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the sample quantitation limit but greater than zero.
- C This flag applies to pesticide results where the identification has been confirmed by GC/MS.
- B This flag is used when the analyte is found in the associated blank as well as in the sample.
- E This flag identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis.
- D This flag identifies all compounds identified in an analysis at a secondary dilution factor.
- G The TCLP Matrix Spike recovery was greater than the upper limit of the analytical method.
- L The TCLP Matrix Spike recovery was lower than the lower limit of the analytical method.
- T This flag is used when the analyte is found in the associated TCLP extraction as well as in the sample.



### INORGANIC DATA COMMENT PAGE

Laboratory Name RECRA ENVIRONMENTAL, INC.

USEPA Defined Inorganic Data Qualifiers:

- B Indicates a value greater than or equal to the instrument detection limit but less than the contract required detection limit.
- U Indicates element was analyzed for but not detected. Report with the detection limit value (e.g., 100).
- E Indicates a value estimated or not reported due to the presence of interference.
- S Indicates value determined by Method of Standard Addition.
- N Indicates spike sample recovery is not within control limits.
- \* Indicates duplicate analysis is not within control limits.
- + Indicates the correlation coefficient for method of standard addition is less than 0.995.
- M Indicates duplicate injection results exceeded control limits.
- W Post digestion spike for Furnace AA analysis is out of control limits (85-115%), while sample absorbance is less than 50% of spike absorbance.
- G The TCLP Matrix Spike recovery was greater than the upper limit of the analytical method.
- L The TCLP Matrix Spike recovery was lower than the lower limit of the analytical method.



PROJECT	NO	<del>'</del>			SITE NAME Kodalux - Fau-laun N			7	<i>\$</i> /	8/	34		8/4/
SAMPLER			-			NO OF				/s.	/ 3	1	REMARKS
Down French						CON		Va	<b>1</b> 5/	3	& /	*/	REMARKS
STATION	DATE	TIME	COMP	GRAS	STATION LOCATION	<u></u>	14	y w	<b>1/</b>	\ <u>/</u> ^	. A	74	
	Y = 1/4	0805	,		MW-3	\$	2	2	1	1	ı	1	
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		<b>0EZ</b> 0		/	MW-4	\$ 8	2	2	1	1	,	1	
		0835			mω-5	#8	2	2			,	1	
		0405		/	MW-8	8	2	2		1	1		
		OH			mw-6	7	2	1	1_	1	,_	<u></u>	,
	4	9NS			mw-9	8	2	2	1	1	,	1	·
	11	0450			mw-7	7	2	1	1	<u></u>	1	,	
		015			mw-2	8	2	2	1	1	,	1	oil w water
		1050		_	MW -1	8	2	2	1	1	1	1	oil wwater
		0%			mw-1 Dup	8	2	2	ı	1	,		oil in water
	$\bigvee$	015		1	Fild Blook Cat mus-	3 8	2	2	1	1	1		
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LINQUIS	**50.5	V ISIG	NA TAKE	<u>.  </u>	DATE THAT THE CENTED BY CUCHATA	25.	51111						
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LINQUIS	HED B	Y (SIG	NATURI		DATE TIME RECEIVED BY ISIGNATU		RELIN			•		-	DATE TIME RECEIVED BY (SIGNATURE)
LINQUIS	HED B		ATUR	th operat	DATE TIME RECEIVED FOR JABORA	rude	11/14	ATE AT	TIME 103c)	REA	X A	ALS O II	SRECIEVED I WHOLE SET OF LES FOR TRIP BLANK
	(2)		لنسيا	(Line				نطف ا	1 1		F	)	

# RECRA ENVIRONMENTAL, INC.

### CHAIN OF CUSTODY RECORD

PROJECT	NO				SITE NAME Kodalux - Fairlann NJ			$\overline{}$	7	7	7	7	77		
SAMPLER Odic	mde	de				NO OF CON TAINERS	s			//	//	/ /	REMARKS		
NO	DATE	TIME	COMP	GRAB	STATION LOCATION		VC								
	当	1323			mω-1		1								
	-	1318		/	mw-2		1								
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## RECRA ENVIRONMENTAL, INC.



Chemical and Environmental Analysis Services

November 22, 1991

Ms. Lynn M. Moody Radian Corporation 155 Corporate Woods, Suite 100 Rochester, NY 14623

Re: Analytical Results

Dear Ms. Moody:

Please find enclosed results concerning the analyses of the samples recently submitted by your firm. The Pertinent Information regarding these analyses is listed below:

Quote #: NY91-945R

Project Name: Kodalux-Fairlawn, NJ

Matrix: Solid Drill Cuttings, Aqueous

Samples Received: 10/29/91

Sample Dates: 10/24,25,28/91

If you have any questions concerning these data, please contact Ms. Donna Bateman, Project Manager, at (716) 691-2600 and refer to the I.D. number listed below. It has been our pleasure to provide Radian Corporation with Environmental Testing Services. We look forward to serving you in the future.

Sincerely,

RECRA ENVIRONMENTAL, INC.

Kenneth C. Malinowski, PhD

Vice President

PJV/KCM/dms Enclosure

> I.D. #91-3161 #91-3161A #2A3811

#### ANALYTICAL RESULTS

### Prepared For

Radian Corporation 155 Corporate Woods, Suite 100 Rochester, New York 14623

### Prepared By

Recra Environmental, Inc. 10 Hazelwood Drive, Suite 106 Amherst, New York 14228-2298

### METHODOLOGIES

The specific methodologies employed in obtaining the enclosed analytical results are indicated on the specific data table. The method numbers presented refer to the following U.S. Environmental Protection Agency reference.

o U.S. Environmental Protection Agency "Test Methods for Evaluating Solid Waste - Physical/Chemical Methods." Office of Solid Waste and Emergency Response. November 1986, SW-846, Third Edition.

### COMMENTS

Comments pertain to data on one or all pages of this report.

The enclosed data has been reported utilizing USEPA data qualifiers (Q) as defined on the Organic and Inorganic Data Comment Pages.

Quality control analyses were performed on a batch basis. All results were within acceptable limits.

Results of the analysis of soils are corrected for moisture content and reported on a dry weight (103°C) basis.

Due to a laboratory oversite, sample Trip Blank was not analyzed for Total Recoverable Petroleum Hydrocarbons as requested on the Chain of Custody. Ms. Lynn Moody of Radian Corporation was notified on November 25, 1991 by Ms. Donna Bateman of Recra Environmental, Inc.

The chromatograms have been provided for the Volatile and Semivolatile RECRA ENVIRONMENTAL

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### RADIAN CORPORATION SOIL MATRIX METHOD 8240 - HAZARDOUS SUBSTANCE LIST VOLATILE ORGANICS

LAB NAME JOB NO. DESC

RECRA ENVIRONMENTAL INC.

JOB NO. 91-3161
DESC DRILL CUTTINGS
SAMPLE NO. CUTTINGS

SAMPLE DATE 10/25/91 ANALYSIS DATE 10/31/91

COMPOUND (Units of Measure = UG/KG )	RESULT	0
Acetone		-
Benzene	11	ט
Bromodichloromethane	5.0	U
Bromoform	5.0	U
Bromomethane	5.0	U
Carbon disulfide	11	U
Carbon tetrachloride	5.0	U
Chlorobenzene	5.0	U
Chlorodibromomethane	5.0	U
Chloroethane	5.0	מ
Chloroform	11	ט
Chloromethane	5.0	U
1,1-Dichloroethane	11	ַ ד
1,2-Dichloroethane	5.0	U
1,1-Dichloroethene	5.0	U
trans-1,2-Dichloroethene	5.0	מממ
1,2-Dichloropropane	5.0	U
trans-1,3-Dichloropropene	5.0	U
cis-1,3-Dichloropropene	5.0	Ū
Ethylbenzene	5.0	Ū
2-Hexanone	5.0	מממ
Methyl ethyl ketone	11	U
4-Methyl-2-pentanone	11	Ū
Methylene chloride	11	Ū
Styrene	5.0	บ
1,1,2,2-Tetrachloroethane	5.0	Ŭ
Tetrachloroethene	5.0	Ū
roluene	5.0	บั
1,1,1-Trichloroethane	5.0	Ŭ
1,1,2-Trichloroethane	3.9	Ŭ J
richloroethene	5.0	บั
Vinyl acetate	5.0	Ŭ
/inyl chloride	11	Ŭ
Kylenes (Total)	11	Ŭ
-1 (100E1)	5.0	Ŭ

DILUTION FACTOR = 1.0 % DRY = 93.5

### RADIAN CORPORATION ADDITIONAL VOLATILE ORGANICS

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.
DESC

91-3161

DESC DRILL CUTTINGS SAMPLE NO. CUTTINGS

SAMPLE DATE 10/25/91

ANALYSIS DATE 10/31/54

COMPOUND (Units of Measure = UG/L )	RESULT	Q	
Trichlorofluoromethane 1,1,2-Trichloro-1,2,2-Trifluoroethane	5.0 5.0	מ	

DILUTION FACTOR = 1.0 \* DRY = 93.5

### SOIL MATRIX METHOD 8240 - HAZARDOUS SUBSTANCE LIST VOLATILE ORGANICS

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3161

DESC

DRILL CUTTINGS

SAMPLE NO. CUTTINGS

**SAMPLE DATE 10/25/91** 

ANALYSIS DATE 10/31/91

COMPOUND	RESULT	Q
Internal Standards		
(*Recovery) Bromochloromethane 1,4-Difluorobenzene Chlorobenzene-D5 Surrogates	106 98 100	
(†Recovery) p-Bromofluorobenzene 1,2-Dichloroethane-D4 Toluene-D8	99 98 98	

DATA FROM FILE: H6966 SCANS 80 TO 1500 ACQUIRED: 10/31/91 20:09:00 CALI: H6966 #3 SAMPLE: DRILL CUTTINGS CONDS.: I50H 100.02 ( 56896.) 200 4:58 CIØ1 BROMOCHLOROMETHANE **\*INTERNAL STANDARD\*** 400 9:57 CS15 D4-1,2-DICHLOROETHANE **\*SURROGATE\*** 600 14:55 CIIO **\*INTERNAL STANDARD\*** D4-1,4-DIFLUOROBENZENE 800 19:53 C505 **D8-TOLUENE \*SURROGATE\*** C120 D5-CHLOROBENZENE **\*INTERNAL STANDARD\*** 1000 24:51 CS10 BROMOFLUOROBENZENE **\*SURROGATE\*** 1200 29:50 1400 34:48 别服

### RADIAN CORPORATION SOIL MATRIX METHOD 8240 - HAZARDOUS SUBSTANCE LIST VOLATILE ORGANICS

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

DESC

91-3161 VOLATILE METHOD BLANK

SAMPLE NO. VBLK 40

ANALYSIS DATE 10/31/91

COMPOUND (Units of Measure = UG/KG )	RESULT	Q
Acetone Benzene Bromodichloromethane Bromoform Bromomethane Carbon disulfide Carbon tetrachloride Chlorobenzene Chlorodibromomethane Chloroethane Chloroform Chloromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethene trans-1,2-Dichloroethene trans-1,3-Dichloropropene cis-1,3-Dichloropropene cis-1,3-Dichloropropene Ethylbenzene 2-Hexanone Methyl ethyl ketone 4-Methyl-2-pentanone Methylene chloride Styrene 1,1,2,2-Tetrachloroethane Tetrachloroethene Toluene 1,1,1-Trichloroethane 1,1,2-Trichloroethane Trichloroethene Vinyl acetate Vinyl chloride Xylenes (Total)	10 5.0 5.0 10 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.	מממממממממממממממממממממממממ י

DILUTION FACTOR = 1.0 % DRY = 100

### RADIAN CORPORATION ADDITIONAL VOLATILE ORGANICS

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3161

DESC VOLATILE METHOD BLANK SAMPLE NO. VBLK 40

ANALYSIS DATE 10/31/91

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Trichlorofluoromethane 1,1,2-Trichloro-1,2,2-Trifluoroethane	5.0 5.0	מ

DILUTION FACTOR = 1.0 % DRY = 100

# RADIAN CORPORATION SOIL MATRIX METHOD 8240 - HAZARDOUS SUBSTANCE LIST VOLATILE ORGANICS

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3161

DESC

VOLATILE METHOD BLANK

SAMPLE NO. VBLK 40

ANALYSIS DATE 10/31/91

COMPOUND	RESULT	Q
Internal Standards		
(*Recovery) Bromochloromethane 1,4-Difluorobenzene Chlorobenzene-D5 Surrogates	110 108 105	
(*Recovery) p-Bromofluorobenzene 1,2-Dichloroethane-D4 Toluene-D8	101 99 99	

DATA FROM FILE: H6957 SCANS 80 TO 1259 ACQUIRED: 19/31/91 13:43:00 CALI: H6957 #3 SAMPLE: UBLK40 CONDS .: 150H <sup>1</sup> 100.07 ⟨ 61120.) 200 4:58 BROMOCHLOROMETHANE **\*INTERNAL STANDARD\*** 400 9:57 D4-1,2-DICHLOROETHANE **\*SURROGATE\*** 600 14:55 CI10 D4-1,4-DIFLUOROBENZENE **\*INTERNAL STANDARD\*** 800 19:53 CS05 D8-TOLUENE **\*SURROGATE\*** C120 D5-CHLOROBENZENE **\*INTERNAL STANDARD\*** 1000 24:51 C510 BROMOFLUOROBENZENE **\*SURROGATE\*** 

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# RADIAN CORPORATION AQUEOUS MATRIX METHOD 8240 - HAZARDOUS SUBSTANCE LIST VOLATILE ORGANICS

RECRA ENVIRONMENTAL INC. LAB NAME JOB NO.

91-3161

SAMPLE NO. TRIP BLANK

ANALYSIS DATE 11/01/91

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Acetone Benzene Bromodichloromethane Bromoomethane Carbon disulfide Carbon tetrachloride Chlorobenzene Chlorodibromomethane Chloroethane Chloroform Chloromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethene trans-1,2-Dichloropropane trans-1,3-Dichloropropene cis-1,3-Dichloropropene Ethylbenzene 2-Hexanone Methyl ethyl ketone 4-Methyl-2-pentanone Methylene chloride Styrene 1,1,2,2-Tetrachloroethane Tetrachloroethene Toluene 1,1,1-Trichloroethane 1,1,2-Trichloroethane Trichloroethene Vinyl acetate Vinyl chloride Xylenes (Total)	10 5.0 5.0 10 5.0 10 5.0 10 10 10 10 10 10 10 10 10 10 10 10 10	מממממממממממממממממממממממ י

DILUTION FACTOR = 1.0

### RADIAN CORPORATION ADDITIONAL VOLATILE ORGANICS

LAB NAME JOB NO.

RECRA ENVIRONMENTAL INC.

91-3161

SAMPLE NO. TRIP BLANK

ANALYSIS DATE 11/01/\_1

COMPOUND		T	7-
(Units of Measure = UG/L )	RESULT	Q	-
Trichlorofluoromethane 1,1,2-Trichloro-1,2,2-Trifluoroethane	5.0	ū	7-
-/-/- Transco-1,2,2-Trilluoroethane	5.0	טן	- [

DILUTION FACTOR =

## RADIAN CORPORATION AQUEOUS MATRIX METHOD 8240 - HAZARDOUS SUBSTANCE LIST VOLATILE ORGANICS

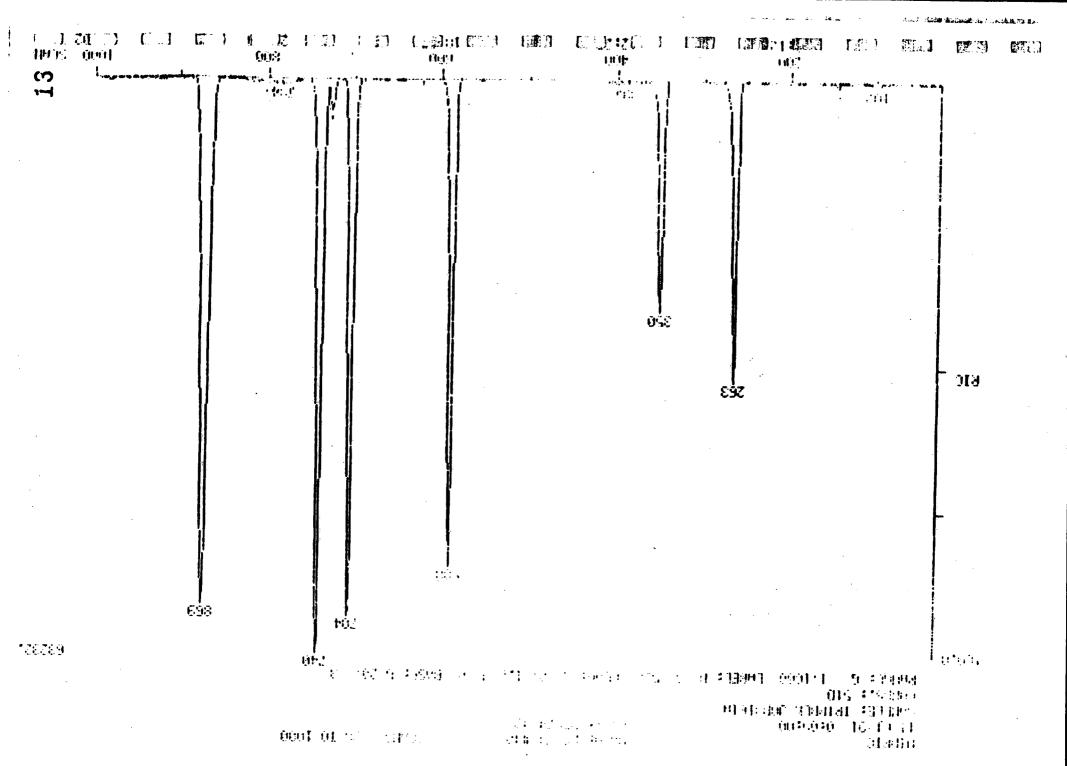
RECRA ENVIRONMENTAL INC. 91-3161 LAB NAME

JOB NO.

SAMPLE NO. TRIP BLANK

ANALYSIS DATE 11/01/91

COMPOUND	RESULT	Q
Internal Standards		
(*Recovery) Bromochloromethane 1,4-Difluorobenzene Chlorobenzene-D5 Surrogates	93 93 93	
(*Recovery) p-Bromofluorobenzene 1,2-Dichloroethane-D4 Toluene-D8	106 100 97	-



## RADIAN CORPORATION AQUEOUS MATRIX METHOD 8240 - HAZARDOUS SUBSTANCE LIST VOLATILE ORGANICS

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO. 91-3161
DESC VOLATILE METHOD BLANK
SAMPLE NO. VBLK 79

ANALYSIS DATE 11/02/91

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Acetone Benzene	10 5.0	ט
Bromodichloromethane	5.0	ប
Bromoform Bromomethane	5.0	מ
Carbon disulfide	10	U
Carbon disdilide Carbon tetrachloride	5.0	U
Chlorobenzene	5.0	U
Chlorodibromomethane	5.0	ממ
Chloroethane	5.0	10
Chloroform	10	l d
Chloromethane	5.0	- מ
1,1-Dichloroethane	5.0	ָט - ט
1,2-Dichloroethane	5.0	Ü
1,1-Dichloroethene	5.0	d
trans-1,2-Dichloroethene	5.0	Ö
1,2-Dichloropropane	5.0	Ü
trans-1,3-Dichloropropene	5.0	Ü
cis-1,3-Dichloropropene	5.0	Ü
Ethylbenzene	5.0	Ŭ
2-Hexanone	10	Ü
Methyl ethyl ketone	10	Ü
4-Methyl-2-pentanone	10	Ū
Methylene chloride	5.0	Ū
Styrene	5.0	Ü
1,1,2,2-Tetrachloroethane	5.0	Ū
Tetrachloroethene	5.0	U
Coluene	5.0	U
1,1,1-Trichloroethane	5.0	U
1,1,2-Trichloroethane	5.0	บ
Trichloroethene	5.0	U
/inyl acetate	10	ט
Vinyl chloride	10	ט
(Ylenes (Total)	5.0	U

DILUTION FACTOR = 1.0

#### RADIAN CORPORATION AQUEOUS MATRIX ETHOD 8240 - HAZARDOUS SUBSTA

METHOD 8240 - HAZARDOUS SUBSTANCE LIST VOLATILE ORGANICS

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3161

DESC

VOLATILE METHOD BLANK

SAMPLE NO. VBLK 79

ANALYSIS DATE 11/02/91

COMPOUND	RESULT	Q
Internal Standards		
(†Recovery) Bromochloromethane 1,4-Difluorobenzene Chlorobenzene-D5 Surrogates	96 95 94	ם ט
(*Recovery) p-Bromofluorobenzene 1,2-Dichloroethane-D4 Toluene-D8	103 97 99	ט ט ט -

117

### RADIAN CORPORATION ADDITIONAL VOLATILE ORGANICS

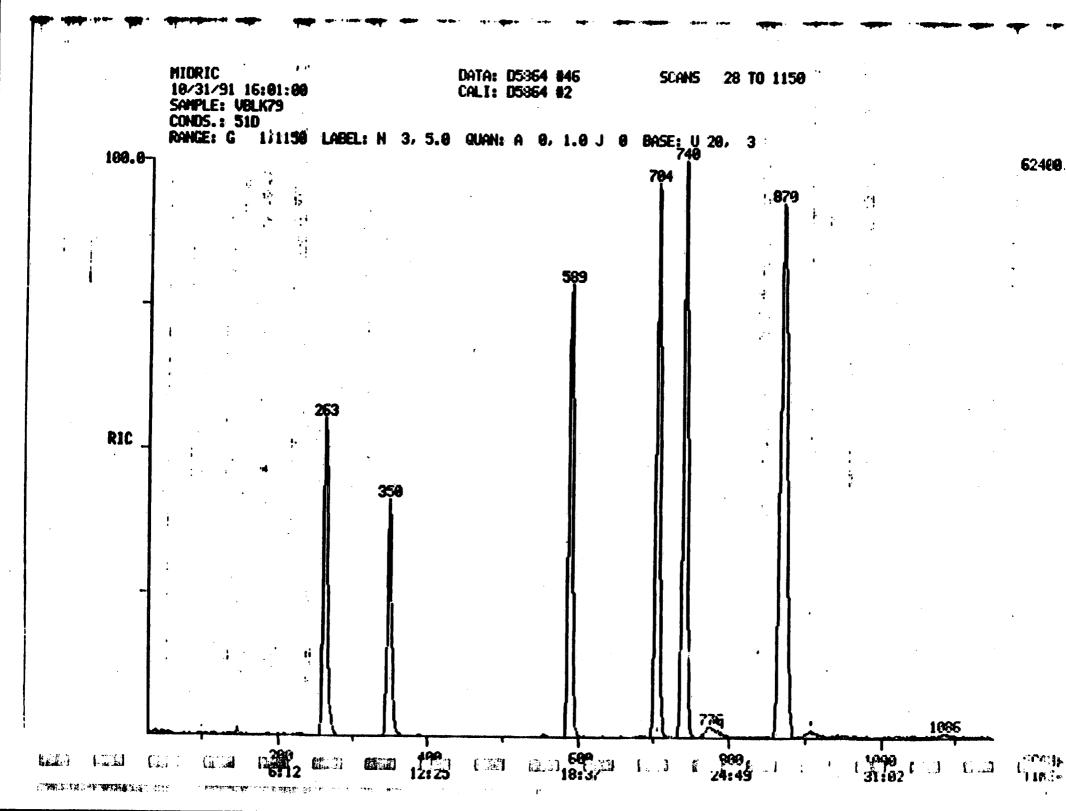
LAB NAME

RÉCRÀ ENVIRONMENTAL INC.

JOB NO. 91-3161
DESC VOLATILE METHOD BLANK
SAMPLE NO. VBLK 79

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Trichlorofluoromethane 1,1,2-Trichloro-1,2,2-Trifluoroethane	5.0 5.0	מ

DILUTION FACTOR = 1.0



### RADIAN CORPORATION SOIL MATRIX

## METHOD 8270 - HAZARDOUS SUBSTANCE LIST SEMIVOLATILE ORGANICS

RECRA ENVIRONMENTAL INC.

LAB NAME JOB NO.

91-3161

DESC DRILL CUTTINGS SAMPLE NO. CUTTINGS

**SAMPLE DATE 10/25/91** EXTRACTION DATE 11/08/91 ANALYSIS DATE 11/12/91

COMPOUND (Units of Measure = UG/KG )			
Acenaphthène Anthracene Benzo(a) anthracene Benzo(b) fluoranthene Benzo(k) fluoranthene Benzo(k) fluoranthene Benzo(k) fluoranthene Benzo(c) fluoranthene Benzo(c) fluoranthene Benzo(c) fluoranthene Benzo(c) fluoranthene Benzo(c) fluoranthene Benzo(c) fluoranthene Benzo(c) fluoranthene Benzo(c) fluoranthene Benzoic Acid Benzoic Acid Benzoic Acid Benzoic Acid Benzoic Acid Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane		RESULT	Q
Acenaphthène Anthracene Benzo(a) anthracene Benzo(b) fluoranthene Benzo(k) fluoranthene Benzo(k) fluoranthene Benzo(k) fluoranthene Benzo(c) fluoranthene Benzo(c) fluoranthene Benzo(c) fluoranthene Benzo(c) fluoranthene Benzo(c) fluoranthene Benzo(c) fluoranthene Benzo(c) fluoranthene Benzo(c) fluoranthene Benzoic Acid Benzoic Acid Benzoic Acid Benzoic Acid Benzoic Acid Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane Bis (2-chlorothoxy)methane	Acenaphthylene	350	77
Anthracene	Acenaphthene		
Senzo(a) anthracene   350 U   Senzo(b) fluoranthene   350 U   Senzo(b) fluoranthene   350 U   Senzo(ghi) perylene   350 U   Senzo(ghi) perylene   350 U   Senzoic Acid   1,800 U   Senzoic Acid   1,800 U   Senzyl Alcohol   350 U   Sis (2-chloroethoxy) methane   350 U   Sis (2-chloroethoxy) methane   350 U   Sis (2-chloroispropyl) ether   350 U   Sis (2-chloroispropyl) ether   350 U   Sis (2-chloroispropyl) ether   350 U   Sis (2-chloroispropyl) ether   350 U   Sis (2-chloroispropyl) ether   350 U   Sis (2-chloroispropyl) ether   350 U   Sis (2-chloroispropyl) ether   350 U   Sis (2-chloroispropyl) ether   350 U   Sis (2-chloroispropyl) ether   350 U   Sis (2-chloroispropyl) ether   350 U   Sis (2-chloroispropyl) ether   350 U   Sis (2-chloroispropyl) ether   350 U   Sis (2-chloroispropyl) ether   350 U   Sis (2-chloroispropyl) ether   350 U   Sis (2-chloroispropyl) ether   350 U   Sis (2-chloroispropyl) ether   350 U   Sis (2-chloroispropyl) ether   350 U   Sis (2-chloroispropyl) ether   350 U   Sis (2-chloroispropyl) ether   350 U   Sis (2-chloroispropyl) ether   350 U   Sis (2-chloroispropyl) ether   350 U   Sis (2-chloroispropyl) ether   350 U   Sis (2-chloroispropyl) ether   350 U   Sis (2-chloroispropyl) ether   350 U   Sis (2-chloroispropyl) ether   350 U   Sis (2-chloroispropyl) ether   350 U   Sis (2-chloroispropyl) ether   350 U   Sis (2-chloroispropyl) ether   350 U   Sis (2-chloroispropyl) ether   350 U   Sis (2-chloroispropyl) ether   350 U   Sis (2-chloroispropyl) ether   350 U   Sis (2-chloroispropyl) ether   350 U   Sis (2-chloroispropyl) ether   350 U   Sis (2-chloroispropyl) ether   350 U   Sis (2-chloroispropyl) ether   350 U   Sis (2-chloroispropyl) ether   350 U   Sis (2-chloroispropyl) ether   350 U   Sis (2-chloroispropyl) ether   350 U   Sis (2-chloroispropyl) ether   350 U   Sis (2-chloroispropyl) ether   350 U   Sis (2-chloroispropyl) ether   350 U   Sis (2-chloroispropyl) ether   350 U   Sis (2-chloroispropyl) ether   350 U   Sis (2-chloroispropyl) ether   350 U   Sis (2-chloroispropyl	Anthracene		
Senzo(b) fluoranthene   350 U   Senzo(a) fluoranthene   350 U   Senzo(a) pyrene   350 U   Senzo(a) pyrene   350 U   Senzo(a) pyrene   350 U   Senzo(a) Acid   1,800 U   Senzyl Alcohol   350 U   Senzyl Alcohol   350 U   Sis (2-chloroethoxy) methane   350 U   Sis (2-chloroethoxy) methane   350 U   Sis (2-chloroethoxy) ether   350 U   Sis (2-chlorofsopropyl) ether   350 U   Sis (2-chlylhexyl) phthalate   350 U   Sis (2-chlylhexyl) phthalate   350 U   Senzyl phthalate   350 U   Senzyl phthalate   350 U   Senzyl phthalate   350 U   Senzyl phthalate   350 U   Senzyl phthalate   350 U   Senzyl phthalate   350 U   Senzyl phthalate   350 U   Senzyl phthalate   350 U   Senzyl phthalate   350 U   Senzyl phthalate   350 U   Senzyl phthalate   350 U   Senzyl phthalate   350 U   Senzyl phthalate   350 U   Senzyl phthalate   350 U   Senzyl phthalate   350 U   Senzyl phthalate   350 U   Senzyl phthalate   350 U   Senzyl phthalate   350 U   Senzyl phthalate   350 U   Senzyl phthalate   350 U   Senzyl phthalate   350 U   Senzyl phthalate   350 U   Senzyl phthalate   350 U   Senzyl phthalate   350 U   Senzyl phthalate   350 U   Senzyl phthalate   350 U   Senzyl phthalate   350 U   Senzyl phthalate   350 U   Senzyl phthalate   350 U   Senzyl phthalate   350 U   Senzyl phthalate   350 U   Senzyl phthalate   350 U   Senzyl phthalate   350 U   Senzyl phthalate   350 U   Senzyl phthalate   350 U   Senzyl phthalate   350 U   Senzyl phthalate   350 U   Senzyl phthalate   350 U   Senzyl phthalate   350 U   Senzyl phthalate   350 U   Senzyl phthalate   350 U   Senzyl phthalate   350 U   Senzyl phthalate   350 U   Senzyl phthalate   350 U   Senzyl phthalate   350 U   Senzyl phthalate   350 U   Senzyl phthalate   350 U   Senzyl phthalate   350 U   Senzyl phthalate   350 U   Senzyl phthalate   350 U   Senzyl phthalate   350 U   Senzyl phthalate   350 U   Senzyl phthalate   350 U   Senzyl phthalate   350 U   Senzyl phthalate   350 U   Senzyl phthalate   350 U   Senzyl phthalate   350 U   Senzyl phthalate   350 U   Senzyl phthalate   350 U			
Benzo(k) fluoranthene   350 U   Benzo(a) pyrene   350 U   Benzo(a) pyrene   350 U   Benzoic Acid   1,800 U   350 U   Benzoic Acid   1,800 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U   350 U			
Benzo(ghi)perylene   350			
Benzo(a) pyrene			
Benzoic Acid   1,800	Benzo (a) pyrene		
Senzyl Alcohol   350	Benzoic Acid		
Bis (2-chloroethoxy)methane   350   U     Bis (2-chloroethyl) ether   350   U     Bis (2-chloroisopropyl)   ether   350   U     Bis (2-ethylhexyl) phthalate   350   U     A-Bromophenyl phenyl ether   350   U     Butyl benzyl phthalate   350   U     4-Chloroaniline   350   U     2-Chloronaphthalene   350   U     2-Chlorophenol   350   U     2-Chlorophenol   350   U     4-Chlorophenyl phenyl ether   350   U     Chrysene   350   U     Dibenzofuran   350   U     1,3-Dichlorobenzene   350   U     1,3-Dichlorobenzene   350   U     1,4-Dichlorobenzene   350   U     2,4-Dichlorobenzene   350   U     2,4-Dichlorobenzene   350   U     2,4-Dimethylphenol   350   U     Dimethyl phthalate   350   U     2,4-Dinitrooluene   350   U     2,4-Dinitrooluene   350   U     2,4-Dinitrooluene   350   U     2,4-Dinitrooluene   350   U     2,4-Dinitrooluene   350   U     2,4-Dinitrooluene   350   U     2,4-Dinitrooluene   350   U     350   U     350   U     350   U     46xachlorocyclopentadiene   350   U     46xachlorocyclopentadiene   350   U     46xachlorocyclopentadiene   350   U     46xachlorocyclopentadiene   350   U     46xachlorocyclopentadiene   350   U     46xachlorocyclopentadiene   350   U     46xachlorocyclopentadiene   350   U     46xachlorocyclopentadiene   350   U     46xachlorocyclopentadiene   350   U     46xachlorocyclopentadiene   350   U     46xachlorocyclopentadiene   350   U     46xachlorocyclopentadiene   350   U     46xachlorocyclopentadiene   350   U     46xachlorocyclopentadiene   350   U     46xachlorocyclopentadiene   350   U     46xachlorocyclopentadiene   350   U     46xachlorocyclopentadiene   350   U     46xachlorocyclopentadiene   350   U     46xachlorocyclopentadiene   350   U     46xachlorocyclopentadiene   350   U	Benzyl Alcohol		
Bis (2-chloroethyl) ether Bis (2-chloroisopropyl) ether Bis (2-chloroisopropyl) ether Bis (2-chlorospyl) ether Bis (2-chlorospyl) ether Bis (2-chloropyl) ether Bis (2-chloropyl) ether Bis (2-chloropyl) ether Bis (2-chloropyl) ether Bis (2-chloropyl) ether Bis (2-chloropyl) ether Bis (2-chloropyl) phenyl ether Bis (2-chloropyl) phenyl ether Bis (2-chloropyl) phenyl ether Bis (2-chloropyl) phenyl ether Bis (2-chlorophenol) 350 U Bis (2-chlorophenol) 350 U Bis (2-chlorophenol) 350 U Bis (2-chlorophenol) 350 U Bis (2-chlorophenol) 350 U Bis (2-chlorophenol) 350 U Bis (2-chlorophenol) 350 U Bis (2-chlorophenol) 350 U Bis (2-chlorophenol) 350 U Bis (2-chlorophenol) 350 U Bis (2-chlorophenol) 350 U Bis (2-chlorophenol) 350 U Bis (2-chlorophenol) 350 U Bis (2-chlorophenol) 1,800 U Bis (2-chlorophenol) 1,800 U Bis (2-chlorophenol) 1,800 U Bis (2-chlorophenol) 1,800 U Bis (2-chlorophenol) 1,800 U Bis (2-chlorophenol) 1,800 U Bis (2-chlorophenol) 1,800 U Bis (2-chlorophenol) 1,800 U Bis (2-chlorophenol) 1,800 U Bis (2-chlorophenol) 1,800 U Bis (2-chlorophenol) 1,800 U Bis (2-chlorophenol) 1,800 U Bis (2-chlorophenol) 1,800 U Bis (2-chlorophenol) 1,800 U Bis (2-chlorophenol) 1,800 U Bis (2-chlorophenol) 1,800 U Bis (2-chlorophenol) 1,800 U Bis (2-chlorophenol) 1,800 U Bis (2-chlorophenol) 1,800 U Bis (2-chlorophenol) 1,800 U Bis (2-chlorophenol) 1,800 U Bis (2-chlorophenol) 1,800 U Bis (2-chlorophenol) 1,800 U Bis (2-chlorophenol) 1,800 U Bis (2-chlorophenol) 1,800 U Bis (2-chlorophenol) 1,800 U Bis (2-chlorophenol) 1,800 U Bis (2-chlorophenol) 1,800 U Bis (2-chlorophenol) 1,800 U Bis (2-chlorophenol) 1,800 U Bis (2-chlorophenol) 1,800 U Bis (2-chlorophenol) 1,800 U Bis (2-chlorophenol) 1,800 U Bis (2-chlorophenol) 1,800 U Bis (2-chlorophenol) 1,800 U Bis (2-chlorophenol) 1,800 U Bis (2-chlorophenol) 1,800 U Bis (2-chlorophenol) 1,800 U Bis (2-chlorophenol) 1,800 U Bis (2-chlorophenol) 1,800 U Bis (2-chlorophenol) 1,800 U Bis (2-chlorophenol) 1,800 U Bis (2-chlorophenol) 1,800 U Bis (2-chlorophenol) 1,800 U Bis (2-chloroph	Bis (2-chloroethoxy) methane		
Bis (2-Chloroisopropyl) ether Bis (2-ethylhexyl)phthalate 4-Bromophenyl phenyl ether 350 U Butyl benzyl phthalate 4-Chloroaniline 9-Chloron-m-cresol 2-Chloronaphthalene 2-Chlorophenol 350 U 2-Chlorophenol 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U	Bis(2-chloroethyl)ether		
Bis (2-ethylhexyl) phthalate       350       U         4-Bromophenyl phenyl ether       350       U         Butyl benzyl phthalate       350       U         4-Chloroaniline       350       U         p-Chlorom-cresol       350       U         2-Chlorophenol       350       U         4-Chlorophenyl phenyl ether       350       U         Chrysene       350       U         Dibenzo(a,h) anthracene       350       U         Dibenzofuran       350       U         1,3-Dichlorobenzene       350       U         1,2-Dichlorobenzene       350       U         1,4-Dichlorobenzene       350       U         3,3'-Dichlorobenzidine       700       U         2,4-Dichlorophenol       350       U         1,4-Dichlorophenol       350       U         2,4-Dimethylphenol       350       U         2,4-Dimethylphenol       350       U         2,4-Dinitrophenol       1,800       U         2,4-Dinitrophenol       1,800       U         2,4-Dinitrotoluene       350       U         2,6-Dinitrotoluene       350       U         Di-n-octyl phthalate       3	Bis(2-Chloroisopropyl) ether		
4-Bromophenyl phenyl ether Butyl benzyl phthalate 350 U 4-Chloroaniline 350 U 2-Chloro-m-cresol 2-Chlorophenol 350 U 4-Chlorophenol 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U	Bis(2-ethylhexyl)phthalate		
### Butyl benzyl phthalate ### 350 U ### 4-Chloroaniline ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U ### 350 U	4-Bromophenyl phenyl ether		
4-Chloroaniline p-Chloro-m-cresol 2-Chloronaphthalene 2-Chlorophenol 350 U 2-Chlorophenol 350 U 350 U 2-Chlorophenol 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 46xachlorobutadiene	Butyl benzyl phthalate		
p-Chloro-m-cresol 350 U 2-Chloronaphthalene 350 U 4-Chlorophenol 350 U 4-Chlorophenyl phenyl ether 350 U Chrysene 350 U Dibenzo(a, h) anthracene 350 U Dibenzofuran 350 U 1,3-Dichlorobenzene 350 U 1,2-Dichlorobenzene 350 U 1,4-Dichlorobenzene 350 U 350 U 1,4-Dichlorobenzene 350 U 2,4-Dichlorophenol 350 U Diethyl phthalate 350 U Dimethyl phthalate 350 U 2,4-Dimitro-o-cresol 1,800 U 2,4-Dinitrotoluene 350 U 2,4-Dinitrotoluene 350 U 2,6-Dinitrotoluene 350 U Di-n-octyl phthalate 350 U Di-n-octyl phthalate 350 U Di-n-octyl phthalate 350 U Di-n-octyl phthalate 350 U Di-n-octyl phthalate 350 U Di-n-octyl phthalate 350 U Di-n-octyl phthalate 350 U Di-n-octyl phthalate 350 U Di-n-octyl phthalate 350 U Di-n-octyl phthalate 350 U Di-x-octyl phthalate 350 U Di-x-octyl phthalate 350 U Di-x-octyl phthalate 350 U Di-x-octyl phthalate 350 U Di-x-octyl phthalate 350 U Di-x-octyl phthalate 350 U Di-x-octyl phthalate 350 U Di-x-octyl phthalate 350 U Di-x-octyl phthalate 350 U Di-x-octyl phthalate 350 U Di-x-octyl phthalate 350 U Di-x-octyl phthalate 350 U Di-x-octyl phthalate 350 U Di-x-octyl phthalate 350 U Di-x-octyl phthalate 350 U Di-x-octyl phthalate 350 U Di-x-octyl phthalate 350 U Di-x-octyl phthalate 350 U Di-x-octyl phthalate 350 U Di-x-octyl phthalate 350 U Di-x-octyl phthalate 350 U Di-x-octyl phthalate 350 U Di-x-octyl phthalate 350 U Di-x-octyl phthalate 350 U	4-Chloroaniline		
2-Chloronaphthalene 2-Chlorophenol 4-Chlorophenyl phenyl ether Chrysene Dibenzo(a,h)anthracene Dibenzofuran 1,3-Dichlorobenzene 1,2-Dichlorobenzene 1,4-Dichlorobenzene 350 U 3,3'-Dichlorobenzene 350 U 3,3'-Dichlorobenzidine 2,4-Dimethylphenol Diethyl phthalate 350 U Dimethyl phthalate 4,6-Dinitro-o-cresol 2,4-Dinitrotoluene 2,4-Dinitrotoluene 350 U 2,4-Dinitrotoluene 350 U 2,4-Dinitrotoluene 350 U 2,4-Dinitrotoluene 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 48xachlorobutadiene	p-Chloro-m-cresol		
2-Chlorophenol 4-Chlorophenyl phenyl ether Chrysene Dibenzo(a,h) anthracene Dibenzofuran 1,3-Dichlorobenzene 1,2-Dichlorobenzene 1,4-Dichlorobenzene 350 U 3,3'-Dichlorobenzidine 350 U 3,3'-Dichlorobenzidine 350 U 3,3'-Dichlorophenol 350 U 2,4-Dichlorophenol 350 U 2,4-Dichlorophenol 350 U 2,4-Dimethyl phthalate 350 U 350 U 2,4-Dimethyl phthalate 350 U 2,4-Dinitro-o-cresol 1,800 U 2,4-Dinitrotoluene 2,6-Dinitrotoluene 350 U 2,4-Dinitrotoluene 350 U 350 U 350 U 350 U 350 U 46-Dinitrotoluene 350 U 51-n-octyl phthalate 350 U 51-n-octyl phthalate 350 U 51-n-octyl phthalate 350 U 51-n-octyl phthalate 350 U 61-n-octyl phthalate 350 U 61-n-octyl phthalate 350 U 61-n-octyl phthalate 350 U 61-n-octyl phthalate 350 U 61-n-octyl phthalate 350 U 61-n-octyl phthalate 350 U 61-n-octyl phthalate 350 U 61-n-octyl phthalate 350 U 61-n-octyl phthalate 350 U 61-n-octyl phthalate 350 U 61-n-octyl phthalate 350 U 61-n-octyl phthalate 350 U 61-n-octyl phthalate 350 U 61-n-octyl phthalate 350 U 61-n-octyl phthalate 350 U 61-n-octyl phthalate 350 U 61-n-octyl phthalate 350 U 61-n-octyl phthalate 350 U 61-n-octyl phthalate 350 U 61-n-octyl phthalate 350 U 61-n-octyl phthalate 350 U 61-n-octyl phthalate 350 U 61-n-octyl phthalate 350 U 61-n-octyl phthalate 350 U 61-n-octyl phthalate 350 U 61-n-octyl phthalate 350 U 61-n-octyl phthalate 350 U 61-n-octyl phthalate 350 U 61-n-octyl phthalate 350 U 61-n-octyl phthalate 350 U 61-n-octyl phthalate 350 U 61-n-octyl phthalate 350 U 61-n-octyl phthalate 350 U 61-n-octyl phthalate 350 U 61-n-octyl phthalate 350 U 61-n-octyl phthalate 350 U 61-n-octyl phthalate 350 U 61-n-octyl phthalate 350 U 61-n-octyl phthalate 350 U 61-n-octyl phthalate 350 U 61-n-octyl phthalate 350 U 61-n-octyl phthalate 350 U 61-n-octyl phthalate 350 U 61-n-octyl phthalate 350 U 61-n-octyl phthalate 350 U 61-n-octyl phthalate 350 U 61-n-octyl phthalate 350 U 61-n-octyl phthalate 350 U 61-n-octyl phthalate 350 U 61-n-octyl phthalate 350 U 61-n-octyl phthalate 350 U 61-n-octyl phthalate 350 U 61-n-octyl phthalate 350 U 61-n-oct	2-Chloronaphthalene		
4-Chlorophenyl phenyl ether Chrysene Dibenzo(a,h) anthracene Dibenzofuran 1,3-Dichlorobenzene 1,2-Dichlorobenzene 350 U 1,4-Dichlorobenzene 350 U 3,3'-Dichlorobenzidine 2,4-Dichlorophenol Diethyl phthalate 2,4-Dimethylphenol Dimethyl phthalate 350 U 4,6-Dinitro-o-cresol 2,4-Dinitrophenol 2,4-Dinitrotoluene 2,6-Dinitrotoluene Di-n-butyl phthalate 350 U 2,6-Dinitrotoluene Di-n-octyl phthalate Fluoranthene Fluoranthene Fluorene Hexachlorobutadiene Hexachlorocyclopentadiene Hexachlorocyclopentadiene Hexachlorocyclopentadiene Hexachlorocyclopentadiene Hexachlorocyclopentadiene Hexachlorocyclopentadiene	2-Chlorophenol		12
Chrysene	4-Chlorophenyl phenyl ether		15
Dibenzo (a, h) anthracene       350       U         Dibenzofuran       350       U         1,3-Dichlorobenzene       350       U         1,2-Dichlorobenzene       350       U         3,3'-Dichlorobenzidine       700       U         2,4-Dichlorophenol       350       U         Diethyl phthalate       350       U         2,4-Dimethylphenol       350       U         2,4-Dinitro-o-cresol       1,800       U         2,4-Dinitrophenol       1,800       U         2,4-Dinitrotoluene       350       U         2,6-Dinitrotoluene       350       U         2,6-Dinitrotoluene       350       U         2,6-Dinitrotoluene       350       U         2,6-Dinitrotoluene       350       U         2,6-Dinitrotoluene       350       U         2,6-Dinitrotoluene       350       U         2,6-Dinitrotoluene       350       U         2,6-Dinitrotoluene       350       U         2,6-Dinitrotoluene       350       U         2,6-Dinitrotoluene       350       U         350       U       U         2,6-Dinitrotoluene       350       U	Chrysene		177
Dibenzofuran  1,3-Dichlorobenzene  1,2-Dichlorobenzene  350  1,4-Dichlorobenzene  3,3'-Dichlorobenzidine  2,4-Dichlorophenol  Diethyl phthalate  2,4-Dimethylphenol  Dimethyl phthalate  4,6-Dinitro-o-cresol  2,4-Dinitrophenol  2,4-Dinitrotoluene  2,6-Dinitrotoluene  Di-n-butyl phthalate  350  U  2,4-Dinitrotoluene  Di-n-octyl phthalate  Di-n-octyl phthalate  Fluoranthene  Fluoranthene  Fluoranthene  Fluorene  Hexachlorobutadiene  Hexachlorobutadiene  Hexachlorocyclopentadiene  Hexachlorocyclopentadiene  Hexachlorocyclopentadiene  Hexachlorocyclopentadiene  Hexachlorocyclopentadiene  JS0  U  U  U  U  U  U  U  U  U  U  U  U  U	Dibenzo(a,h)anthracene		177
1,2-Dichlorobenzene 1,4-Dichlorobenzene 3,3'-Dichlorobenzidine 2,4-Dichlorophenol Diethyl phthalate 2,4-Dimethylphenol Dimethyl phthalate 4,6-Dinitro-o-cresol 2,4-Dinitrophenol 2,4-Dinitrotoluene 2,6-Dinitrotoluene Di-n-butyl phthalate Di-n-octyl phthalate Fluoranthene Fluorene Hexachlorobenzene Hexachlorobutadiene Hexachlorocyclopentadiene Hexachlorocyclopentadiene  350 U U U U U U U U U U U U U U U U U U U	Dibenzofuran		1
1,2-Dichlorobenzene			#
1,4-Dichlorobenzidine 3,3'-Dichlorophenol 2,4-Dichlorophenol Diethyl phthalate 2,4-Dimethylphenol Dimethyl phthalate 4,6-Dinitro-o-cresol 2,4-Dinitrophenol 2,4-Dinitrotoluene 350 U 2,4-Dinitrotoluene 350 U 2,6-Dinitrotoluene 350 U 2,6-Dinitrotoluene 350 U 350 U U U U U U U U U U U U U U U U U U U			
3,3'-Dichlorobenzidine 2,4-Dichlorophenol Diethyl phthalate 2,4-Dimethylphenol Dimethyl phthalate 4,6-Dinitro-o-cresol 2,4-Dinitrophenol 2,4-Dinitrotoluene 350 U 2,4-Dinitrotoluene 350 U 2,6-Dinitrotoluene 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 4 4-Achlorobenzene 4-Achlorobenzene 4-Achlorocyclopentadiene 4-Achlorocyclopentadiene 4-Achlorocyclopentadiene 4-Achlorocyclopentadiene 4-Achlorocyclopentadiene 4-Achlorocyclopentadiene 4-Achlorocyclopentadiene 4-Achlorocyclopentadiene 4-Achlorocyclopentadiene 4-Achlorocyclopentadiene 4-Achlorocyclopentadiene 4-Achlorocyclopentadiene 4-Achlorocyclopentadiene 4-Achlorocyclopentadiene 4-Achlorocyclopentadiene 4-Achlorocyclopentadiene 4-Achlorocyclopentadiene 4-Achlorocyclopentadiene 4-Achlorocyclopentadiene 4-Achlorocyclopentadiene 4-Achlorocyclopentadiene 4-Achlorocyclopentadiene 4-Achlorocyclopentadiene 4-Achlorocyclopentadiene 4-Achlorocyclopentadiene 4-Achlorocyclopentadiene 4-Achlorocyclopentadiene 4-Achlorocyclopentadiene 4-Achlorocyclopentadiene 4-Achlorocyclopentadiene 4-Achlorocyclopentadiene 4-Achlorocyclopentadiene 4-Achlorocyclopentadiene 4-Achlorocyclopentadiene 4-Achlorocyclopentadiene 4-Achlorocyclopentadiene 4-Achlorocyclopentadiene 4-Achlorocyclopentadiene 4-Achlorocyclopentadiene 4-Achlorocyclopentadiene 4-Achlorocyclopentadiene 4-Achlorocyclopentadiene 4-Achlorocyclopentadiene 4-Achlorocyclopentadiene 4-Achlorocyclopentadiene 4-Achlorocyclopentadiene 4-Achlorocyclopentadiene 4-Achlorocyclopentadiene 4-Achlorocyclopentadiene 4-Achlorocyclopentadiene 4-Achlorocyclopentadiene 4-Achlorocyclopentadiene 4-Achlorocyclopentadiene 4-Achlorocyclopentadiene 4-Achlorocyclopentadiene 4-Achlorocyclopentadiene 4-Achlorocyclopentadiene	1,4-Dichlorobenzene		
Diethyl phthalate  2,4-Dimethylphenol  Dimethyl phthalate  4,6-Dinitro-o-cresol  2,4-Dinitrophenol  2,4-Dinitrotoluene  2,6-Dinitrotoluene  Di-n-butyl phthalate  Di-n-octyl phthalate  Fluoranthene  Fluoranthene  Fluorene  Hexachlorobenzene  Hexachlorocyclopentadiene  Hexachlorocyclopentadiene  Hexachlorocyclopentadiene  Hexachlorocyclopentadiene  Hexachlorocyclopentadiene  Hexachlorocyclopentadiene  J50  U  U  U  U  U  U  U  U  U  U  U  U  U	3,3'-Dichlorobenzidine		1
Diethyl phthalate 2,4-Dimethylphenol Dimethyl phthalate 4,6-Dinitro-o-cresol 2,4-Dinitrophenol 2,4-Dinitrotoluene 2,6-Dinitrotoluene 350 U 2,6-Dinitrotoluene 350 U 2,6-Dinitrotoluene 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 350 U 4 4-Allinitrotoluene 350 U 50 Di-n-butyl phthalate 350 U 51 Di-n-octyl phthalate 51 Di-n-octyl phthalate 51 Di-n-octyl phthalate 53 Di-n-octyl phthalate 53 Di-n-octyl phthalate 53 Di-n-octyl phthalate 53 Di-n-octyl phthalate 53 Di-n-octyl phthalate 53 Di-n-octyl phthalate 53 Di-n-octyl phthalate 53 Di-n-octyl phthalate 53 Di-n-octyl phthalate 53 Di-n-octyl phthalate 53 Di-n-octyl phthalate 53 Di-n-octyl phthalate 53 Di-n-octyl phthalate 53 Di-n-octyl phthalate 53 Di-n-octyl phthalate 53 Di-n-octyl phthalate 53 Di-n-octyl phthalate 53 Di-n-octyl phthalate 53 Di-n-octyl phthalate 53 Di-n-octyl phthalate 53 Di-n-octyl phthalate 53 Di-n-octyl phthalate 53 Di-n-octyl phthalate 53 Di-n-octyl phthalate 53 Di-n-octyl phthalate 53 Di-n-octyl phthalate 53 Di-n-octyl phthalate 53 Di-n-octyl phthalate 53 Di-n-octyl phthalate 53 Di-n-octyl phthalate 53 Di-n-octyl phthalate 53 Di-n-octyl phthalate 53 Di-n-octyl phthalate 53 Di-n-octyl phthalate 53 Di-n-octyl phthalate 53 Di-n-octyl phthalate 53 Di-n-octyl phthalate 53 Di-n-octyl phthalate 53 Di-n-octyl phthalate 53 Di-n-octyl phthalate 53 Di-n-octyl phthalate 53 Di-n-octyl phthalate 53 Di-n-octyl phthalate 53 Di-n-octyl phthalate 53 Di-n-octyl phthalate 53 Di-n-octyl phthalate 53 Di-n-octyl phthalate 53 Di-n-octyl phthalate 53 Di-n-octyl phthalate 53 Di-n-octyl phthalate 53 Di-n-octyl phthalate 54 Di-n-octyl phthalate 55 Di-n-octyl phthalate 55 Di-n-octyl phthalate 55 Di-n-octyl phthalate 55 Di-n-octyl phthalate 55 Di-n-octyl phthalate 55 Di-n-octyl phthalate 55 Di-n-octyl phthalate 55 Di-n-octyl phthalate 55 Di-n-octyl phthalate 55 Di-n-octyl phthalate 55 Di-n-octyl phthalate 55 Di-n-octyl phthalate 55 Di-n-octyl phthalate 55 Di-n-octyl phthalate 55 Di-n-octyl phthalate 55 Di-n-octyl phthalate 55 Di-n-octyl phthalate 55 Di-n-octyl phth	2,4-Dichlorophenol		
Dimethyl phthalate 4,6-Dinitro-o-cresol 2,4-Dinitrophenol 2,4-Dinitrotoluene 350 U 2,4-Dinitrotoluene 350 U 2,6-Dinitrotoluene 350 U Di-n-butyl phthalate 350 U Fluoranthene Fluorene Hexachlorobenzene Hexachlorobutadiene Hexachlorocyclopentadiene Hexachlorocyclopentadiene Hexachlorocyclopentadiene Hexachlorocyclopentadiene Hexachlorocyclopentadiene Hexachlorocyclopentadiene Hexachlorocyclopentadiene Hexachlorocyclopentadiene Hexachlorocyclopentadiene	Diethyl phthalate		
4.6-Dinitro-o-cresol 2,4-Dinitrophenol 2,4-Dinitrotoluene 350 2,6-Dinitrotoluene 350 Di-n-butyl phthalate 350 U U U U U U U U U U U U U U U U U U U	2,4-Dimethylphenol		l <del>ii</del>
1,800 U 2,4-Dinitrophenol 2,4-Dinitrotoluene 350 U 2,6-Dinitrotoluene 350 U Di-n-butyl phthalate Di-n-octyl phthalate Fluoranthene Fluorene Hexachlorobenzene Hexachlorobutadiene Hexachlorocyclopentadiene Hexachlorocyclopentadiene Hexachlorocyclopentadiene Hexachlorocyclopentadiene Hexachlorocyclopentadiene Hexachlorocyclopentadiene Hexachlorocyclopentadiene	Dimethyl phthalate		Ιττ
2,4-Dinitrotoluene 2,6-Dinitrotoluene 350 U Di-n-butyl phthalate Di-n-octyl phthalate Fluoranthene Fluorene Hexachlorobenzene Hexachlorobutadiene Hexachlorocyclopentadiene Hexachlorocyclopentadiene Hexachlorocyclopentadiene Hexachlorocyclopentadiene Hexachlorocyclopentadiene Hexachlorocyclopentadiene Hexachlorocyclopentadiene Hexachlorocyclopentadiene	4,6-Dinitro-o-cresol		ii
2,6-Dinitrotoluene 2,6-Dinitrotoluene 350 Di-n-butyl phthalate 350 U U U U U U U U U U U U U U U U U U U	2,4-Dinitrophenol		11
2,6-Dinitrotoluene Di-n-butyl phthalate Di-n-octyl phthalate Fluoranthene Fluorene Hexachlorobenzene Hexachlorobutadiene Hexachlorocyclopentadiene Hexachlorocyclopentadiene Hexachlorocyclopentadiene Hexachlorocyclopentadiene Hexachlorocyclopentadiene Hexachlorocyclopentadiene	2,4-Dinitrotoluene		
Di-n-butyl phthalate Di-n-octyl phthalate Fluoranthene Fluorene Hexachlorobenzene Hexachlorobutadiene Hexachlorocyclopentadiene Hexachlorocyclopentadiene Hexachlorocyclopentadiene Hexachlorocyclopentadiene Hexachlorocyclopentadiene	2,6-Dinitrotoluene		ŭ
Fluoranthene Fluorene Hexachlorobenzene Hexachlorocyclopentadiene Hexachlorocyclopentadiene Hexachlorocyclopentadiene Hexachlorocyclopentadiene Hexachlorocyclopentadiene Hexachlorocyclopentadiene	Di-n-butyl phthalate		•
Hexachlorobenzene  Hexachlorobutadiene  Hexachlorocyclopentadiene  Hexachlorocyclopentadiene  Hexachlorocyclopentadiene	Di-n-octyl phthalate		Ū
Hexachlorobenzene  Hexachlorobutadiene  Hexachlorocyclopentadiene  Hexachlorocyclopentadiene  Hexachlorocyclopentadiene	Fluoranthene		Ū
Hexachlorobenzene  Hexachlorocyclopentadiene  Hexachlorocyclopentadiene  Hexachlorocyclopentadiene	Fluorene		ប៊
Hexachlorocyclopentadiene  Hexachlorocyclopentadiene  Hexachlorocyclopentadiene  350 U	nexacniorobenzene		Ū
Heyachlorocyclopentadiene 350 U	Hexachlorobutadiene		Ü
	nexacniorocyclopentadiene		ŭ
	nexacnioroethane		ŭ

DILUTION FACTOR = 1.0 % DRY = 93.5

# RADIAN CORPORATION SOIL MATRIX METHOD 8270 - HAZARDOUS SUBSTANCE LIST SEMIVOLATILE ORGANICS

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3161

DESC

DRILL CUTTINGS

SAMPLE NO. CUTTINGS

SAMPLE DATE 10/25/04 EXTRACTION DATE 11/08/3! ANALYSIS DATE 11/12/91

COMPOUND (Units of Measure = UG/KG )	RESULT	Q
Indeno(1,2,3-cd)pyrene	350	ט
Isophorone	350	ä
2-Methylnapthalene	350	
2-Methylphenol	350	ä
4-Methylphenol		
Naphthalene	350	ש
2-Nitroaniline	350	ט
3-Nitroaniline	1,800	ט
4-Nitroaniline	1,800	ַ
Nitrobenzene	1,800	ט
2-Nitrophenol	350	ū
4-Nitrophenol	350	Ŭ
N-nitroso-di-n-propylamine	1,800	บ-
N-nitrosodiphenylamine	350	U
Pentachlorophenol	350	ש
Phenanthrene	1,800	ַ
Phenol	350	ע
Pyrene	350	ט
1,2,4-Trichlorobenzene	350	ט
2,4,5-Trichlorophenol	350	ן ט
2,4,6-Trichlorophenol	1,800 350	ט

DILUTION FACTOR = 1.0 \* DRY = 93.5

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO. 91-3161 DESC DRILL CUTTINGS SAMPLE NO. CUTTINGS

SAMPLE DATE 10/25/91 EXTRACTION DATE 11/08/91 ANALYSIS DATE 11/12/91

COMPOUND (Units of Measure = UG/L )	RESULT	Q
3-Methylphenol	350	ם
Pyridine	350	מ

DILUTION FACTOR = 1.0 % DRY = 93.5

## RADIAN CORPORATION SOIL MATRIX METHOD 8270 - HAZARDOUS SUBSTANCE LIST SEMIVOLATILE ORGANICS

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3161

DESC DRILL CUTTINGS SAMPLE NO. CUTTINGS

SAMPLE DATE 10/25/91 EXTRACTION DATE 11/08/1 ANALYSIS DATE 11/12/-1

COMPOUND	RESULT	Q
Internal Standards		
(*Recovery) 1,4-Dichlorobenzene-D4 Naphthalene-D8 Acenaphthene-D10 Phenanthrene-D10 Chrysene-D12 Perylene-D12 Surrogates	91 81 92 100 106 102	
(*Recovery) 2-Fluorophenol Phenol-D5 2,4,6-Tribromophenol Nitrobenzene-D5 2-Fluorobiphenyl Terphenyl-D14	105 101 108 104 102 82	

DATA FROM FILE: 9225X SCANS 115 TO 2310 ACQUIRED: 11/12/91 18:41:00 CALI: 9225X #3 SAMPLE: DRILLCUTTING JOB 3161 BP3874A CONDS.: AUTOSAMPLR ISOX <sup>1</sup> 100.0% ( 100735.) C550 2-FLUOROPHENOL **SURROGATE** CS45 PHENOL D5 500 **SURROGATE** 8:20 CS20 NITROBENZENE D5 SURROGATE CI40 HAPHTHALENE D8 INTERNAL STANDARD CS25 2-FLUOROBIPHENYL **SURROGATE** 1000 CI50 ACENAPHTHENE D10 INTERNAL STANDARD 15:40 CS55 2,4,6-TRIBROMOPHENOL SURROGATE CIGO PHENANTHRENE DIO INTERNAL STANDARD 1500 25:00 CS30 TERPHENYL D14 **SURROGATE** CI70 CHRYSENE D12 INTERNAL STANDARD 2000 CI75 PERYLENE D12 33:20 INTERNAL STANDARD 铅棉

Use Committee Committee Charles and Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee Committee

### RADIAN CORPORATION SOIL MATRIX METHOD 8270 - HAZARDOUS SUBSTANCE LIST SEMIVOLATILE ORGANICS

LAB NAME RECRA ENVIRONMENTAL INC.

JOB NO. 91-3161
DESC SEMIVOLATILE METHOD BLANK
SAMPLE NO. SBLK 86

EXTRACTION DATE 11/08/94
ANALYSIS DATE 11/12/5

COMPOUND (Units of Measure = UG/KG )	RESULT	Q
Acenaphthylene	330	ซ
Acenaphthene .	330	ŭ
Anthracene	330	Ü
Benzo (a) anthracene	330	Ö
Benzo(b) fluoranthene	330	ט
Benzo(k) fluoranthene	330	Ü
Benzo(ghi)perylene	330	
Benzo(a) pyrene	330	Ŭ
Benzoic Acid		Ü
Benzyl Alcohol	1,600 330	ŭ
Bis (2-chloroethoxy) methane		ū
Bis(2-chloroethyl)ether	330	ā
Bis(2-Chloroisopropyl) ether	330	<u>u</u> -
Bis(2-ethylhexyl)phthalate	330	Ū
4-Bromophenyl phenyl ether	330	U
Butyl benzyl phthalate	330	U
4-Chloroaniline	330	ū
p-Chloro-m-cresol	330	U
2-Chloronaphthalene	330	ַ
2-Chlorophenol	330	ַ
4-Chlorophenyl phenyl ether	330	ַ
Chrysene	330	ט
Dibenzo (a, h) anthracene	330	ט
Dibenzofuran	330	ט
1,3-Dichlorobenzene	330	ט
1,2-Dichlorobenzene	330	ט
1,4-Dichlorobenzene	330	U
3,3'-Dichlorobenzidine	330	ט
2,4-Dichlorophenol	660	ט
Diethyl phthalate	330	U
2,4-Dimethylphenol	330	U
Dimethyl phthalate	330	U
4,6-Dinitro-o-cresol	330	ש
2,4-Dinitrophenol	1,600	ט
2,4-Dinitrotoluene	1,600	Įΰ
3,6-Dinitrotoluene	330	U
Di-n-butyl phthalate	330	U
Di-n-octyl phthalate	330	ט
Fluoranthene	330	ט
luorantnene Pluorene	330	ľΰ
	330	บั
lexachlorobenzene	330	Ū
lexachlorobutadiene	330	Ū
lexachlorocyclopentadiene	330	Ü
lexachloroethane	330	Ü

DILUTION FACTOR = 1.0 % DRY = 100

## RADIAN CORPORATION SOIL MATRIX

## METHOD 8270 - HAZARDOUS SUBSTANCE LIST SEMIVOLATILE ORGANICS

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3161

DESC SEMIVOLATILE METHOD BLANK SAMPLE NO. SBLK 86

EXTRACTION DATE 11/08/91 ANALYSIS DATE 11/12/91

COMPOUND (Units of Measure = UG/KG )	RESULT	Q
Indeno(1,2,3-cd)pyrene	330	U
Isophorone	330	Ū
2-Methylnapthalene	330	Ŭ
2-Methylphenol	330	<b>ט</b>
4-Methylphenol	330	Ŭ
Naphthalene	330	Ü
2-Nitroaniline	1,600	Ū
3-Nitroaniline	1,600	Ū
4-Nitroaniline	1,600	Ü
Nitrobenzene	330	Ŭ
2-Nitrophenol	330	Ū
4-Nitrophenol	1,600	<u> </u>
N-nitroso-di-n-propylamine	330	ָ ט ט
N-nitrosodiphenvlamine	330	Ü
Pentachlorophenol	1,600	Ū
Phenanthrene	330	Ū
Phenol	330	Ū
Pyrene	330	Ū
1,2,4-Trichlorobenzene	330	Ŭ
2,4,5-Trichlorophenol	1,600	Ŭ
2,4,6-Trichlorophenol	330	ĺΰ

DILUTION FACTOR = 1.0 % DRY = 100

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3161

DESC

SEMIVOLATILE METHOD BLANK

SAMPLE NO. SBLK 86

EXTRACTION DATE 11/08/9.
ANALYSIS DATE 11/12/91

COMPOUND (Units of Measure = UG/L )	RESULT	Q	]
3-Methylphenol	350	U	1
Pyridine	350	U	

## RADIAN CORPORATION SOIL MATRIX METHOD 8270 - HAZARDOUS SUBSTANCE LIST SEMIVOLATILE ORGANICS

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3161

DESC

SEMIVOLATILE METHOD BLANK

SAMPLE NO. SBLK 86

EXTRACTION DATE 11/08/91 ANALYSIS DATE 11/12/91

COMPOUND	RESULT	Q
Internal Standards		
(*Recovery) 1,4-Dichlorobenzene-D4 Naphthalene-D8 Acenaphthene-D10 Phenanthrene-D10 Chrysene-D12 Perylene-D12 Surrogates	126 118 123 130 134 127	
(†Recovery) 2-Fluorophenol Phenol-D5 2,4,6-Tribromophenol Nitrobenzene-D5 2-Fluorobiphenyl Terphenyl-D14	64 65 73 66 69 53	

DATA FROM FILE: 9226X SCANS 115 TO 2310 ACQUIRED: 11/12/91 19:27:00 CALI: 9226X #3 SAMPLE: SBLK86 JOB 3161 BP3875A CONDS.: AUTOSAMPLR 150X J 100.02 ( 58048.) CS50 2-FLUOROPHENOL **SURROGATE** 500 CS45 PHENOL D5 **SURROGATE** 8:20 CS20 NITROBENZENE D5 **SURROGATE** CI40 NAPHTHALENE D8 INTERNAL STANDARD C525 2-FLUOROBIPHENYL **SURROGATE** 1000 16:40 CI50 ACENAPHTHENE D10 INTERNAL STANDARD CS55 2,4,6-TRIBROMOPHENOL SURROGATE CI60 PHENANTHRENE D10 INTERNAL STANDARD 1500 25:00 CS30 TERPHENYL D14 **SURROGATE** CI70 CHRYSENE D12 INTERNAL STANDARD 2000 33:20 CI75 PERYLENE D12 INTERNAL STANDARD BUT GET ALL GET OUT THAT OUT !

### RADIAN CORPORATION SOIL MATRIX METHOD 8015 - NON-HALOGENATED VOLATILE **ORGANICS**

LAB NAME RECRA ENVIRONMENTAL INC.
JOB NO. 91-3161
DESC DRILL CUTTINGS
SAMPLE NO. CUTTINGS

SAMPLE DATE 10/25/91

ANALYSIS DATE 11/07/91

COMPOUND (Units of Measure = UG/KG )	RESULT	Q
Isobutanol	490	U

RECRA ENVIRONMENTAL INC. 91-3161

DRILL CUTTINGS

LAB NAME RECRA EN JOB NO. 91-3161 DESC DRILL CUT SAMPLE NO. CUTTINGS

SAMPLE DATE 10/25/9

ANALYSIS DATE 11/07/91

COMPOUND	RESULT	Q
Surrogates		
(*Recovery) 2-Hexanone	76	

# RADIAN CORPORATION AQUEOUS MATRIX METHOD 8015 - NON-HALOGENATED VOLATILE **ORGANICS**

LAB NAME JOB NO.

RECRA ENVIRONMENTAL INC. 91-3161

SAMPLE NO. TRIP BLANK

ANALYSIS DATE 11/02/91

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Isobutanol	1,000	Ū

79

LAB NAME JOB NO.

RECRA ENVIRONMENTAL INC. 91-3161

SAMPLE NO. TRIP BLANK

ANALYSIS DATE 11/02/91

RESULT	Q
	RESULT 70

# RADIAN CORPORATION AQUEOUS MATRIX METHOD 8015 - NON-HALOGENATED VOLATILE ORGANICS

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO. 91-3161
DESC METHOD BLANK
SAMPLE NO. MB-1

ANALYSIS DATE 11/02/91

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Isobutanol	1,000	U

Lab Name Job No. Desc\_

RECRA ENVIRONMENTAL INC.

91-3161 METHOD BLANK

SAMPLE NO. MB-1

ANALYSIS DATE 11/02/91

COMPOUND	RESULT	Q	7
Surrogates			
(\text{Recovery})			
2-Hexanone	68		

## RADIAN CORPORATION SOIL MATRIX METHOD 8015 - NON-HALOGENATED VOLATILE ORGANICS

34

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

DESC.

91-3161 METHOD BLANK

SAMPLE NO. MB-2

ANALYSIS DATE 11/07/91

COMPOUND (Units of Measure = UG/KG )	RESULT	Q
Isobutanol	400	U

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO. DESC

91-3161

METHOD BLANK

SAMPLE NO. MB-2

ANALYSIS DATE 11/07/91

COMPOUND	RESULT	Q	]
Surrogates			
(*Recovery) 2-Hexanone			
2-Hexanone	92		

36

LAB NAME JOB NO. RECRA ENVIRONMENTAL INC. 91-3161

OB NO. 91-316

**SAMPLE DATE 10/25/91** 

SAMPLE NO. PB-1

	UNIT OF MEASURE		ANALYSIS DATE	RESULT	Q
Total Rec. Petro. Hydrocarbons	mg/l	418.1	11/04/91	0.5	U

37

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3161

SAMPLE DATE 10/24/91

SAMPLE NO. PB-2

COMPOUND	UNIT OF MEASURE		ANALYSIS DATE	RESULT	Q
Total Rec. Petro. Hydrocarbons	mg/l	418.1	11/04/91	0.5	ט

LAB NAME JOB NO.

RECRA ENVIRONMENTAL INC.

91-3161

SAMPLE DATE 10/28/91

SAMPLE NO. PB-3

COMPOUND	UNIT OF MEASURE		ANALYSIS DATE	RESULT	Q
Total Rec. Petro. Hydrocarbons	mg/l	418.1	11/04/91	0.5	U

LAB NAME JOB NO.

RECRA ENVIRONMENTAL INC.

91-3161

SAMPLE NO. PB-4

SAMPLE DATE 10/25/91

	UNIT OF MEASURE		ANALYSIS DATE	RESULT	C.
Total Rec. Petro. Hydrocarbons	mg/l	418.1	11/04/91	0.5	U

LAB NAME JOB NO.

RECRA ENVIRONMENTAL INC.

91-3161

SAMPLE DATE 10/28/91

SAMPLE NO. PB-5

COMPOUND	UNIT OF MEASURE		ANALYSIS DATE	RESULT	Q
Total Rec. Petro. Hydrocarbons	mg/l	418.1	11/04/91	0.5	U

LAB NAME JOB NO.

RECRA ENVIRONMENTAL INC. 91-3161

SAMPLE DATE 10/25/91

SAMPLE NO. PB-6

	UNIT OF MEASURE		ANALYSIS DATE	RESULT	Q -
Total Rec. Petro. Hydrocarbons	mg/l	418.1	11/04/91	0.68	

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO. DESC

91-3161 EQUIPMENT BLANK

SAMPLE NO. E.B.

**SAMPLE DATE 10/25/91** 

COMPOUND	UNIT OF MEASURE		ANALYSIS DATE	RESULT	Q
Total Rec. Petro. Hydrocarbons	mg/l	418.1	11/04/91	0.5	σ

Lab name Job no. Desc

LAB NAME RECRA ENVIRONMENTAL INC.

JOB NO. 91-3161

DESC METHOD BLANK

SAMPLE NO. MB-1

COMPOUND	UNIT OF MEASURE		ANALYSIS DATE	RESULT	Q,
Total Rec. Petro. Hydrocarbons	mg/l	418.1	11/04/91	0.5	<u>ט</u>

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

DESC SAMPLE NO.

91-3161 DRILL CUTTINGS CUTTINGS

SAMPLE DATE 10/25/91

COMPOUND	UNIT OF MEASURE		ANALYSIS DATE	RESULT	0
Corrosivity Flash Point Total Available Cyanide Total Available Sulfide	°F MG/KG	1110 1010 7.3.2 7.3.4.1	11/15/91 11/05/91 11/14/91 11/14/91	7.9 200 10 10	* U

<sup>\*</sup> THE VALUE IS GREATER THAN 200 DEGREES FAHRENHEIT

LAB NAME JOB NO.

RECRA ENVIRONMENTAL INC. 91-3161

SAMPLE NO. METHOD BLANK

COMPOUND	UNIT OF MEASURE		ANALYSIS DATE	RESULT	
Total Available Cyanide Total Available Sulfide	MG/KG MG/KG	7.3.2 7.3.4.1	11/14/91 11/14/91	10	מ

24

QNY91-945

CHAIN OF CUSTODY RECORD

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	10/24	0915		×	Pilot Borehole 2	,	,					1 L Amber Glass 4°C cool	
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	W/25			×	Pilot Burchele 1 (Mw·7)	1						1 L Amber 61255 4°C (00)	
	ાગેટક	440		×	Pilit Barchale 6		1					1 - Amber 665 H250, pH52	
	10/25	1515		Х	Rilor Borehole 4							" "	
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RECRA ENVIRONMENTAL, INC.



## RECRA ENVIRONMENTAL. INC.



Chemical and Environmental Analysis Services

December 10, 1991

Ms. Lynn M. Moody Radian Corporation 155 Corporate Woods, Suite 100 Rochester, NY 14623

Re: Analytical Results

Dear Ms. Moody:

Please find enclosed revised results concerning the TRPH results of sample PB-4 DUP recently submitted by your firm. The Pertinent Information regarding these analyses is listed below:

Quote #: NY91-945R

Project Name: Kodalux-Fairlawn, NJ

Matrix: Solid Drill Cuttings, Aqueous

Samples Received: 10/29/91

Sample Dates: 10/24,25,28/91

If you have any questions concerning these data, please contact Ms. Donna Bateman, Project Manager, at (716) 691-2600 and refer to the I.D. number listed below. It has been our pleasure to provide Radian Corporation with Environmental Testing Services. We apologize for any inconvenience this may have caused you and we look forward to serving you in the future.

Sincerely,

RECRA ENVIRONMENTAL, INC.

Kenneth C. Malinowski, PhD

Vice President

PJV/KCM/dms Enclosure

> I.D. #91-3161 #91-3161A Revised #2A3811

## RADIAN CORPORATION AQUEOUS MATRIX WATER QUALITY TESTING

LAB NAME JOB NO.

RECRA ENVIRONMENTAL INC.

91-3161

**SAMPLE DATE 10/25/91** 

SAMPLE NO. PB-4DUP

COMPOUND	UNIT OF MEASURE		ANALYSIS DATE	RESULT	Q
Total Rec. Petro. Hydrocarbons	mg/l	418.1	11/04/91	0.5	U

## RECRA ENVIRONMENTAL, INC.

GRAND PATRON
HELPING TO BRING THE
WORLD TO BUFFALO

Chemical and Environmental Analysis Services

December 30, 1991

Ms. Lynn M. Moody Radian Corporation 155 Corporate Woods, Suite 100 Rochester, NY 14623

Re: Analytical Results

Dear Ms. Moody:

Please find enclosed results concerning the analyses of the sample recently submitted by your firm. The Pertinent Information regarding these analyses is listed below:

Quote #: NY91-945R

P.O. #: 136191

Project Name: Kodalux-Fairlawn, NJ

Matrix: TCLP Extract

Sample Received: 10/29/91

Sample Date: 10/25/91

If you have any questions concerning these data, please contact Ms. Donna Bateman, Project Manager, at (716) 691-2600 and refer to the I.D. number listed below. It has been our pleasure to provide Radian Corporation with Environmental Testing Services. We look forward to serving you in the future.

Sincerely,

RECRA ENVIRONMENTAL, INC.

Lennoth C. Malinowski, PhD

Vice President

MAT/KCM/dms Enclosure

> I.D. #91-3651 #NY2A3811

三丁 聖國 西部門

#### Prepared For

Radian Corporation 155 Corporate Woods, Suite 100 Rochester, New York 14623

#### Prepared By

Recra Environmental, Inc. 10 Hazelwood Drive, Suite 106 Amherst, New York 14228-2298

### METHODOLOGIES

The specific methodologies employed in obtaining the enclosed analytical results are indicated on the specific data table. The method numbers presented refer to the following U.S. Environmental Protection Agency reference.

o U.S. Environmental Protection Agency "Test Methods for Evaluating Solid Waste - Physical/Chemical Methods." Office of Solid Waste and Emergency Response. November 1986, SW-846, Third Edition.

The Toxicity Characteristic Leaching Procedure was performed in accordance with modified method 1311, 40 CFR, Appendix II to Part 261, June 1990.

#### COMMENTS

Comments pertain to data on one or all pages of this report.

The enclosed results are reported utilizing data qualifiers (Q) as defined on the attached Inorganic Data Comment Page.

TCLP matrix spike quality control analysis was not performed at the request of Radian Corporation. Therefore, the measured values for sample DRILL CUTTINGS on the enclosed TCLP data have not been corrected for analytical bias as required by the referenced TCLP protocol.



### Laboratory Name RECRA ENVIRONMENTAL, INC.

## USEPA Defined Inorganic Data Qualifiers:

- B Indicates a value greater than or equal to the instrument detection limit but less than the contract required detection limit.
- U Indicates element was analyzed for but not detected. Report with the detection limit value (e.g., 100).
- E Indicates a value estimated or not reported due to the presence of interference.
- S Indicates value determined by Method of Standard Addition.
- N Indicates spike sample recovery is not within control limits.
- \* Indicates duplicate analysis is not within control limits.
- + Indicates the correlation coefficient for method of standard addition is less than 0.995.
- M Indicates duplicate injection results exceeded control limits.
- W Post digestion spike for Furnace AA analysis is out of control limits (85-115%), while sample absorbance is less than 50% of spike absorbance.
- G The TCLP Matrix Spike recovery was greater than the upper limit of the analytical method.
- L The TCLP Matrix Spike recovery was lower than the lower limit of the analytical method.



# RADIAN CORPORATION TOXICITY CHARACTERISTIC LEACHING PROCEDURE EXTRACT TOTAL METALS

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3651

DESC

DRILL CUTTINGS

SAMPLE NO. CUTTINGS

SAMPLE DATE 10/25/91 -

COMPOUND (MG/L)	METHOD NUMBER	analysis Date	EPA MAX. CONC.	RESULT	MATRIX CORR. VALUE	Q
Total Arsenic Total Barium Total Cadmium Total Chromium Total Lead Total Mercury Total Selenium Total Silver	7060 6010 6010 7190 7420 7470 7740 7760	12/23/91 12/20/91 12/20/91 12/23/91 12/23/91 12/23/91 12/23/91 12/23/91	100.0 1.0 5.0 5.0 0.2	0.005 1.0 0.005 0.015 0.06 0.0004 0.005	0.0 0.0 0.0 0.0 0.0	ממממ מ

MEASURED VALUES HAVE NOT BEEN CORRECTED FOR ANALYTICAL BIAS.

104

## RADIAN CORPORATION TOXICITY CHARACTERISTIC LEACHING PROCEDURE EXTRACT TOTAL METALS

LAB NAME JOB NO.

RECRA ENVIRONMENTAL INC. 91-3651

SAMPLE NO. TCLP-BLANK

COMPOUND (MG/L)	METHOD NUMBER	ANALYSIS DATE	EPA MAX. CONC.	RESULT	MATRIX CORR. VALUE	Q
Total Arsenic Total Barium Total Cadmium Total Chromium Total Lead Total Mercury Total Selenium Total Silver	7060 6010 6010 7190 7420 7470 7740 7760	12/23/91 12/20/91 12/20/91 12/23/91 12/23/91 12/23/91 12/23/91 12/23/91	100.0 1.0 5.0 5.0 0.2 1.0	0.005 0.03 0.005 0.017 0.06 0.0004 0.005	0.0 0.0 0.0 0.0 0.0 0.0	ממממ מממ

## RADIAN CORPORATION TOXICITY CHARACTERISTIC LEACHING PROCEDURE EXTRACT TOTAL METALS

LAB NAME JOB NO.

RECRA ENVIRONMENTAL INC.

91-3651

SAMPLE NO. METHOD BLANK

COMPOUND (MG/L)	METHOD NUMBER	ANALYSIS DATE	EPA MAX. CONC.	RESULT	MATRIX CORR. VALUE	Q	
Total Arsenic Total Barium Total Cadmium Total Chromium Total Lead Total Mercury Total Selenium Total Silver	7060 6010 6010 7190 7420 7470 7740 7760	12/23/91 12/20/91 12/20/91 12/23/91 12/23/91 12/23/91 12/23/91 12/23/91	100.0 1.0 5.0 5.0 0.2	0.005 0.03 0.005 0.01 0.06 0.0002 0.005	0.0 0.0 0.0 0.0 0.0 0.0	מממממממ	

104

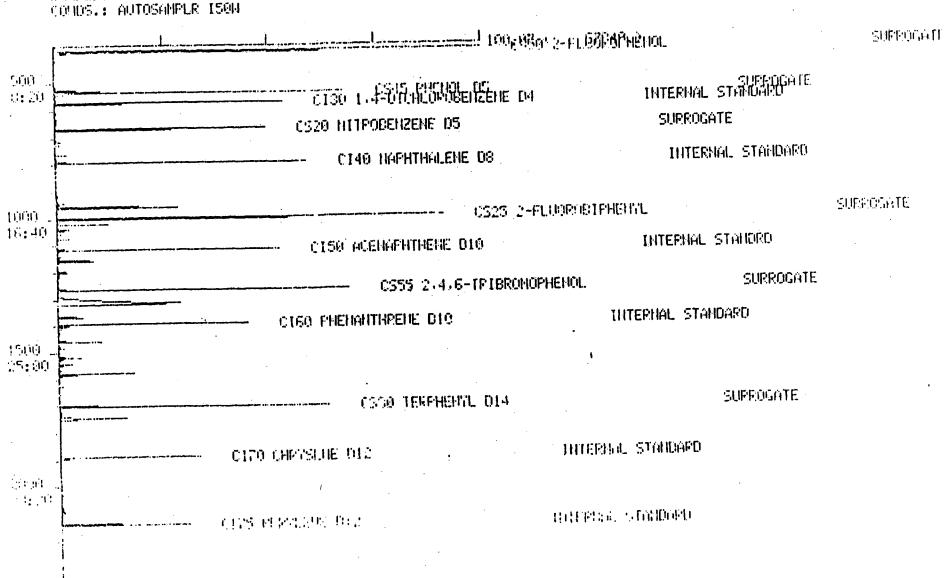
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NOTE: TELP METALS ANALYSIS ON SAMPLE ID "DRILL CUTTINGS" KEQUESTED

ONTA FROM FILE: 7163M

SCHRS 350 TO 2520 ACQUIRED: 11/30/91 21:20:00 CALT: 71634 #3

SAMPLE: MM3 JOB 3386 AP1442 M3



## ANALYTICAL RESULTS

## GAS CHROMATOGRAPHY/MASS SPECTROMETRY EXTRACTABLE LIBRARY COMPARISON SEARCH

SAMPLE I.D.:MW-3

JOB#:91-3386.24

FILE: 7163W

scan #	COMPOUND NAME	ESTIMATED CONCENTRATION (UNITS= UG/L)
525	1,3-DITHIOLANE (4829-04-3)	7.1
955	DICHLOROBENZENAMINE ISOMER	26
1017	CHLORO DIMETHYL PHENOL ISOMER	10
1153	UNKNOWN	8.0
1312	UNKNOWN	130
1363	UNKNOWN	6.0
1456	ALKYL SUBSTITUTED HYDROCARBON	12
1577	UNKNOWN	21
1745	UNKNOWN	34

#### RADIAN CURPURATION AQUEOUS MATRIX METHOD 625

BASE/NEUTRAL/ACID EXTRACTABLES

LAB NAME JOB NO.

RECRA ENVIRONMENTAL INC.

91-3386

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/91 ANALYSIS DATE 11/30/91

SAMPLE NO. MW-4

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Acenaphthene Acenaphthylene Anthracene Benzo(a) anthracene Benzo(b) fluoranthene Benzo(c) fluoranthene Benzo(a) pyrene Benzo(g,h,i) perylene Benzo(g,h,i) perylene Benzo(g,h,i) perylene Benzidine Bis(2-chloroethyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Butyl benzyl phthalate 4-Bromophenylphenylether Butyl benzyl phthalate 4-Chloro-3-methylphenol 2-Chlorophenol 4-Chlorophenol 4-Chlorophenol 4-Chlorophenol Din-n-butyl phthalate 1,2-Dichlorobenzene 1,3-Dichlorobenzene 1,3-Dichlorobenzene 1,4-Dichlorobenzene 3,3'-Dichlorobenzidine 2,4-Dimethylphthalate 2,4-Dimethylphthalate 2,4-Dimitrophenol Dimethylphthalate 2,4-Dinitrotoluene 2,6-Dinitrotoluene Di-n-octylphthalate Fluorene Hexachlorobenzene Hexachlorobenzene Hexachlorobenzene Hexachlorocyclopentadiene Hexachlorocyclopentadiene Hexachlorocthane	12 12 12 12 12 12 12 12 12 12 12 12 12 1	מממממממממממממממממממממממממממממממממממממממ

#### RADIAN CORPORATION AQUEOUS MATRIX METHOD 625 BASE/NEUTRAL/ACID EXTRACTABLES

LAB NAME RECRA ENVIRONMENTAL INC. JOB NO. 91-3386

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/9 ANALYSIS DATE 11/30/5

SAMPLE NO. MW-4

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Indeno(1,2,3-cd)pyrene Isophorone 2-Methyl-4,6-dinitrophenol Naphthalene Nitrobenzene 2-Nitrophenol 4-Nitrophenol N-nitrosodi-n-propylamine N-Nitrosodimethylamine N-Nitrosodiphenylamine Pentachlorophenol Phenanthrene Phenol Pyrene 1,2,4-Trichlorobenzene 2,4,6-Trichlorophenol	12 12 62 12 12 12 62 12 12 62 12 12 12 12	ממממממממממממ -

#### RADIAN CORPORATION METHOD 8270 - SELECTED SEMIVOLATILE ORGANICS

LAB NAME RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE DATE 11/15/9 EXTRACTION DATE 11/22/9 ANALYSIS DATE 11/30/9

SAMPLE NO. MW-4

COMPOUND (Units of Measure = UG/L	)	RESULT	Q
Hydroquinone		12	U

DILUTION FACTOR = 1.0 EXTRACTION VOLUME = 800 ML

26

## RADIAN CORPORATION AQUEOUS MATRIX METHOD 625 BASE/NEUTRAL/ACID EXTRACTABLES

LAB NAME RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE DATE 11/15/9 EXTRACTION DATE 11/22/ ANALYSIS DATE 11/30/

SAMPLE NO. MW-4

	R	ESULT	Q
COMPOUND			
Internal Standards		•	
(%Recovery) 1,4-Dichlorobenzene-D4 Naphthalene-D8 Acenaphthene-D10 Phenanthrene-D10 Chrysene-D12 Perylene-D12		108 105 112 111 88 97	
Surrogates	·		
(%Recovery) 2-Fluorophenol Phenol-D5 2,4,6-Tribromophenol Nitrobenzene-D5 2-Fluorobiphenyl Terphenyl-D14		51 34 78 71 61 57	

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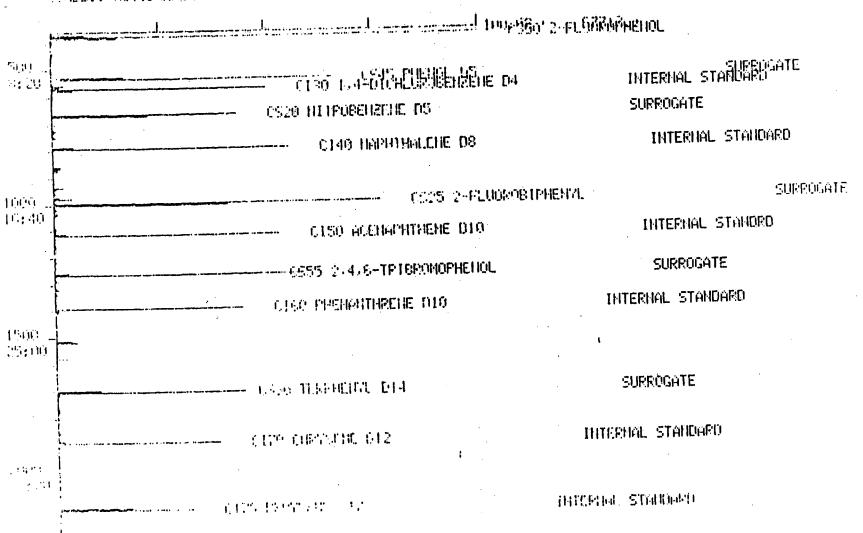
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## ANALYTICAL RESULTS

## GAS CHROMATOGRAPHY/MASS SPECTROMETRY EXTRACTABLE LIBRARY COMPARISON SEARCH

SAMPLE I.D.:MW-4

JOB#:91-3386.25

FILE: 7164W

SCAN #	COMPOUND NAME	ESTIMATED CONCENTRATION (UNITS= UG/L)
	•	

# RADIAN CORPORATION AQUEOUS MATRIX METHOD 625

BASE/NEUTRAL/ACID EXTRACTABLES

LAB NAME RECRA ENVIRONMENTAL INC.

JOB NO. 91-3386

SAMPLE DATE 11/15/9: EXTRACTION DATE 11/22/9: ANALYSIS DATE 11/30/9:

SAMPLE NO. MW-5

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Acenaphthene Acenaphthylene Anthracene Benzo(a) anthracene Benzo(b) fluoranthene Benzo(a) pyrene Benzo(a) pyrene Benzo(a, h, i) perylene Benzo(g, h, i) perylene Benzidine Bis(2-chloroethyl) ether Bis(2-chloroethoxy) methane Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Butyl benzyl phthalate 4-Bromophenyl phenol 2-Chloroisopropyl) ether Chrysene Di-n-butyl phthalate 1,2-Dichlorobenzene 1,3-Dichlorobenzene 1,3-Dichlorobenzene 1,3-Dichlorobenzene 1,3-Dichlorobenzidine 2,4-Dinitrotoluene 2,4-Dinitrotoluene 2,4-Dinitrotoluene 2,4-Dinitrotoluene 2,6-Dinitrotoluene Di-n-octylphthalate Fluoranthene Fluorene Hexachlorobenzene Hexachlorobenzene Hexachlorocyclopentadiene Hexachlorocyclopentadiene Hexachlorocyclopentadiene Hexachlorocyclopentadiene	12 12 12 12 12 12 12 12 12 12 12 12 12 1	מממממממממממממממממממממממממממממממממממממממ

# RADIAN CORPORATION AQUEOUS MATRIX METHOD 625 BASE/NEUTRAL/ACID EXTRACTABLES

LAB NAME RECRA ENVIRONMENTAL INC.

JOB NO. 91-3386

SAMPLE DATE 11/15/9 EXTRACTION DATE 11/22/9 ANALYSIS DATE 11/30/9

SAMPLE NO. MW-5

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Indeno(1,2,3-cd)pyrene Isophorone 2-Methyl-4,6-dinitrophenol Naphthalene Nitrobenzene 2-Nitrophenol 4-Nitrophenol N-nitrosodi-n-propylamine N-Nitrosodimethylamine N-Nitrosodiphenylamine Pentachlorophenol Phenanthrene Phenol Pyrene 1,2,4-Trichlorobenzene 2,4,6-Trichlorophenol	12 12 62 12 12 12 62 12 12 62 12 12 12 12 12	מממממממממממממ

#### RADIAN CORPORATION METHOD 8270 - SELECTED SEMIVOLATILE ORGANICS

LAB NAME RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/91 ANALYSIS DATE 11/30/91

SAMPLE NO. MW-5

COMPOUND (Units of Measure = UG/L )	RESULT	Q
	12	ט
Hydroquinone		

# RADIAN CORPORATION AQUEOUS MATRIX METHOD 625

BASE/NEUTRAL/ACID EXTRACTABLES

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/: ANALYSIS DATE 11/30/1

SAMPLE NO. MW-5

	RESULT	Q
COMPOUND		
Internal Standards		
(%Recovery) 1,4-Dichlorobenzene-D4 Naphthalene-D8 Acenaphthene-D10 Phenanthrene-D10 Chrysene-D12 Perylene-D12	121 119 131 132 96 108	
Surrogates		
(%Recovery) 2-Fluorophenol Phenol-D5 2,4,6-Tribromophenol Nitrobenzene-D5 2-Fluorobiphenyl Terphenyl-D14	38 24 53 63 59 61	

DATA FROM FILE: 7165H

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## ANALYTICAL RESULTS

## GAS CHROMATOGRAPHY/MASS SPECTROMETRY EXTRACTABLE LIBRARY COMPARISON SEARCH

SAMPLE I.D.:MW-5

JOB#:91-3386.26

FILE: 7165W

scan #	COMPOUND NAME	ESTIMATED CONCENTRATION (UNITS= UG/L)
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	•	

### RADIAN CORPORATION AQUEOUS MATRIX METHOD 625

## BASE/NEUTRAL/ACID EXTRACTABLES

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO. 91-3386

SAMPLE DATE 11/15/9: EXTRACTION DATE 11/22/9: ANALYSIS DATE 11/30/9:

SAMPLE NO. MW-6

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Acenaphthene Acenaphthylene Anthracene Benzo(a) anthracene Benzo(b) fluoranthene Benzo(x) fluoranthene Benzo(a) pyrene Benzo(g,h,i) perylene Benzidine Bis(2-chloroethyl) ether Bis(2-chloroethyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopro	12 12 12 12 12 12 12 12 12 12 12 12 12 1	מממממממממממממממממממממממממממממממממממממממ

### RADIAN CORPORATION AQUEOUS MATRIX METHOD 625 BASE/NEUTRAL/ACID EXTRACTABLES

LAB NAME RECRA ENVIRONMENTAL INC. JOB NO. 91-3386

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/9 ANALYSIS DATE 11/30/9

SAMPLE NO. MW-6

		1
COMPOUND (Units of Measure = UG/L )	RESULT	Q
Indeno(1,2,3-cd)pyrene Isophorone 2-Methyl-4,6-dinitrophenol Naphthalene Nitrobenzene 2-Nitrophenol 4-Nitrophenol N-nitrosodi-n-propylamine N-Nitrosodimethylamine N-Nitrosodiphenylamine Pentachlorophenol Phenanthrene Phenol Pyrene 1,2,4-Trichlorobenzene 2,4,6-Trichlorophenol	12 12 62 12 12 12 12 12 12 12 12 12 12 12 12	ממממממממממממממ

#### RADIAN CORPORATION METHOD 8270 - SELECTED SEMIVOLATILE ORGANICS

LAB NAME RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/91 ANALYSIS DATE 11/30/91

SAMPLE NO. MW-6

COMPOUND (Units of Measure = UG/L )	RESULT	Q	
(Units of Measure - 50,	12	บ	
Hydroquinone		<u></u>	2

DILUTION FACTOR = 1.0 EXTRACTION VOLUME = 800 ML

26

### RADIAN CORPORATION AQUEOUS MATRIX METHOD 625 BASE/NEUTRAL/ACID EXTRACTABLES

RECRA ENVIRONMENTAL INC. LAB NAME

JOB NO.

91-3386

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/: ANALYSIS DATE 11/30/:

SAMPLE NO. MW-6

COMPOUND	RESULT	Q
Internal Standards		
(%Recovery) 1,4-Dichlorobenzene-D4 Naphthalene-D8 Acenaphthene-D10 Phenanthrene-D10 Chrysene-D12 Perylene-D12	114 110 119 115 86 94	
Surrogates	:	
(%Recovery) 2-Fluorophenol Phenol-D5 2,4,6-Tribromophenol Nitrobenzene-D5 2-Fluorobiphenyl Terphenyl-D14	58 40 76 75 69 83	

SCHRIS 080 TO 0020 ACQUIPED: 11/30 91 23:54:00 CHLI: 7166N #3 CHIA FROM FILE: 7156M SAMPLE: MW6 JOB 3385 API-448/49 -COMOS.: AUTOSAMPLE ISON SUPPORTE The second second took their their lighter here. INTERNAL STANDARD SURROGATE f[a]a[a]CT 30 T. A-DICHERROETTERE DE 9:13) SURROGATE 0820 HITROBEHZÜNE 05 INTERNAL STANDARD C140 HOPHTHOLENE D8 SURROGATE CS25 2-FLUOPORIFHERVL 10000 15:40 INTERNAL STANORD 0150 ACENAPHTHENE D10 SURROGATE CSSS 2,4.6-TRIBROMOPHEHOL THIERNAL STANDARD CISO PHENOMINARENE DIO 1500 25:00 SURROCHTE ESSA TEFFHENCE 014 HITEPHAL STANDARD C170 CHRYSELL DIC

CIPS PLANTED HOL

THERMAL STREET

jorna Pagijal

## ANALYTICAL RESULTS

## GAS CHROMATOGRAPHY/MASS SPECTROMETRY EXTRACTABLE LIBRARY COMPARISON SEARCH

SAMPLE I.D.:MW-6

JOB#:91-3386.27

FILE:7166W

SCAN #	COMPOUND NAME	ESTIMATED CONCENTRATION (UNITS= UG/L)
874	OXYGENATED COMPOUND	9.9

## RADIAN CORPORATION AQUEOUS MATRIX METHOD 625

BASE/NEUTRAL/ACID EXTRACTABLES

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE NO. MW-10

SAMPLE DATE 11/15/9: EXTRACTION DATE 11/22/9: ANALYSIS DATE 12/02/9

		T - 1
COMPOUND (Units of Measure = UG/L )	RESULT	Q
Indeno(1,2,3-cd)pyrene Isophorone 2-Methyl-4,6-dinitrophenol Naphthalene Nitrobenzene 2-Nitrophenol 4-Nitrophenol N-nitrosodi-n-propylamine N-Nitrosodimethylamine N-Nitrosodiphenylamine Pentachlorophenol Phenanthrene Phenol Pyrene 1,2,4-Trichlorobenzene 2,4,6-Trichlorophenol	10 10 50 10 10 10 50 10 10 10 10 10	מממממממממממממם -

### RADIAN CORPORATION AQUEOUS MATRIX METHOD 625

## BASE/NEUTRAL/ACID EXTRACTABLES

LAB NAME RECRA ENVIRONMENTAL INC. JOB NO. 91-3386

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/91 ANALYSIS DATE 12/02/91

SAMPLE NO. MW-10

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Acenaphthene Acenaphthylene Anthracene Benzo(a) anthracene Benzo(b) fluoranthene Benzo(a) pyrene Benzo(a) pyrene Benzo(g,h,i) perylene Benzo(g,h,i) perylene Benzo(g,h,i) perylene Benzo(g,h,i) perylene Benzo(g,h,i) perylene Bis(2-chloroethyl) ether Bis(2-chloroethyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Butyl benzyl phthalate 4-Bromophenylphenylether Butyl benzyl phthalate 4-Chloro-3-methylphenol 2-Chloronaphthalene 2-Chlorophenol 4-Chlorophenol bienzo(a,h) anthracene Di-n-butyl phthalate 1,2-Dichlorobenzene 1,3-Dichlorobenzene 1,3-Dichlorobenzene 1,4-Dichlorobenzidine 2,4-Dinchlorophenol Diethylphthalate 2,4-Dinitrophenol Dimethylphthalate 2,4-Dinitrotoluene 2,6-Dinitrotoluene Di-n-octylphthalate Fluorene Hexachlorobenzene Hexachlorobenzene Hexachlorobenzene Hexachlorobenzene Hexachlorobenzene Hexachlorobethane	10 10 10 10 10 10 10 10 10 10 10 10 10 1	ממממממממממממממממממממממממממממממממממממממ

## ANALYTICAL RESULTS

## GAS CHROMATOGRAPHY/MASS SPECTROMETRY EXTRACTABLE LIBRARY COMPARISON SEARCH

SAMPLE I.D.:MW-9

JOB#:91-3386.15

FILE: 7187W

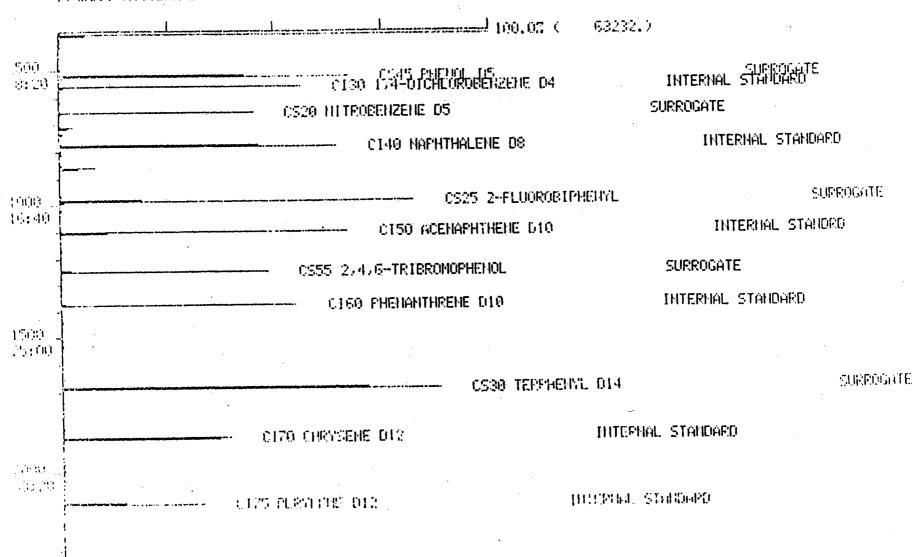
SCAN #	COMPOUND NAME	ESTIMATED CONCENTRATION (UNITS= UG/L)
860	OXYGENATED COMPOUND	13

DOTA FROM FILE: 7187M

SCANS 355 TO \$520 ACCUIRED: 12/02/91 22:04:00 CALI: 7187N #3

SAMPLE: NH9 JOD 3886 AP14454 55

COURS: AUTOSAMPLR 150M



# RADIAN CORPORATION AQUEOUS MATRIX METHOD 625 BASE/NEUTRAL/ACID EXTRACTABLES

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE DATE 11/15/9: EXTRACTION DATE 11/22/ ANALYSIS DATE 12/02/

SAMPLE NO. MW-9

COMPOUND	RESULT	Q
Internal Standards		
(*Recovery) 1,4-Dichlorobenzene-D4 Naphthalene-D8 Acenaphthene-D10 Phenanthrene-D10 Chrysene-D12 Perylene-D12	106 103 105 110 89 98	
Surrogates		<u> </u>
(%Recovery) 2-Fluorophenol Phenol-D5 2,4,6-Tribromophenol Nitrobenzene-D5 2-Fluorobiphenyl Terphenyl-D14	46 33 46 60 66 79	

#### RADIAN CORPORATION METHOD 8270 - SELECTED SEMIVOLATILE ORGANICS

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/91 ANALYSIS DATE 12/02/91

SAMPLE NO. MW-9

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Hydroquinone	12	U

#### RADIAN CORPORATION AQUEOUS MATRIX METHOD 625

## BASE/NEUTRAL/ACID EXTRACTABLES

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/9 ANALYSIS DATE 12/02/9

SAMPLE NO. MW-9

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Indeno(1,2,3-cd)pyrene Isophorone 2-Methyl-4,6-dinitrophenol Naphthalene Nitrobenzene 2-Nitrophenol 4-Nitrophenol N-nitrosodi-n-propylamine N-Nitrosodimethylamine N-Nitrosodiphenylamine Pentachlorophenol Phenanthrene Phenol Pyrene 1,2,4-Trichlorobenzene 2,4,6-Trichlorophenol	12 12 62 12 12 12 12 12 12 12 12 12 12 12 12	ממממממממממממ

#### RADIAN CORPORATION AQUEOUS MATRIX METHOD 625

BASE/NEUTRAL/ACID EXTRACTABLES

LAB NAME RECRA ENVIRONMENTAL INC. JOB NO. 91-3386

SAMPLE NO. MW-9

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/91 ANALYSIS DATE 12/02/91

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Acenaphthene Acenaphthylene Anthracene Benzo(a) anthracene Benzo(b) fluoranthene Benzo(k) fluoranthene Benzo(a) pyrene Benzo(g,h,i) perylene Benzidine Bis(2-chloroethyl) ether Bis(2-chloroethoxy) methane Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroiso	12 12 12 12 12 12 12 12 12 12 12 12 12 1	ממממממממממממממממממממממממממממממממממממממ

### ANALYTICAL RESULTS

# GAS CHROMATOGRAPHY/MASS SPECTROMETRY EXTRACTABLE LIBRARY COMPARISON SEARCH

SAMPLE I.D.:MW-8

JOB#:91-3386.16

FILE: 7186W

SCAN #	COMPOUND NAME	ESTIMATED CONCENTRATION (UNITS= UG/L)

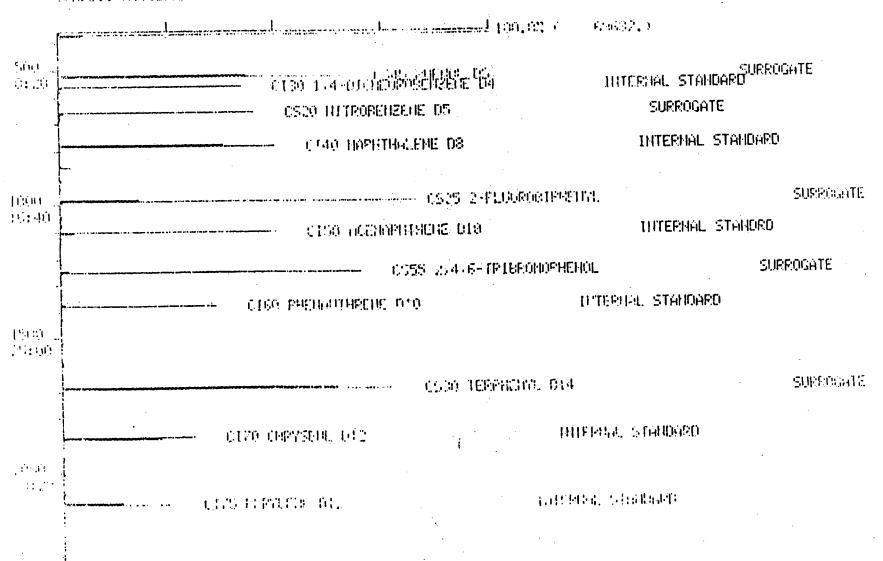
DATA FROM FILE: 7185W

SCHOOL 2005 TO 19320 ACQUIRED: 12/02/91 21:14:00

TOUR 7186M #3

SAMPLE: MNO JOB 3386 APIN452 53

CONTOS.: AUTOSAMPLE 1504



### RADIAN CORPORATION AQUEOUS MATRIX METHOD 625 BASE/NEUTRAL/ACID EXTRACTABLES

LAB NAME

RECRA ENVIRONMENTAL INC.

91-3386 JOB NO.

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/9 ANALYSIS DATE 12/02/9

SAMPLE NO. MW-8

COMPOUND	RESULT	Q
Internal Standards		
(*Recovery) 1,4-Dichlorobenzene-D4 Naphthalene-D8 Acenaphthene-D10 Phenanthrene-D10 Chrysene-D12 Perylene-D12	88 86 86 83 70 74	
(*Recovery) 2-Fluorophenol Phenol-D5 2,4,6-Tribromophenol Nitrobenzene-D5 2-Fluorobiphenyl Terphenyl-D14	65 45 94 88 89 98	_

### RADIAN CORPORATION METHOD 8270 - SELECTED SEMIVOLATILE ORGANICS

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE NO. MW-8

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/91 ANALYSIS DATE 12/02/91

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Hydroquinone	12	U

## BASE/NEUTRAL/ACID EXTRACTABLES

LAB NAME RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE DATE 11/15/97 EXTRACTION DATE 11/22/ : ANALYSIS DATE 12/02/...

1.

SAMPLE NO. MW-8

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Indeno(1,2,3-cd)pyrene Isophorone 2-Methyl-4,6-dinitrophenol Naphthalene Nitrobenzene 2-Nitrophenol 4-Nitrophenol N-nitrosodi-n-propylamine N-Nitrosodimethylamine N-Nitrosodiphenylamine Pentachlorophenol Phenanthrene Phenol Pyrene 1,2,4-Trichlorobenzene 2,4,6-Trichlorophenol	12 12 62 12 12 12 62 12 12 62 12 12 12 12 12	מממממממממממממממ

### RADIAN CORPORATION AQUEOUS MATRIX METHOD 625 BASE/NEUTRAL/ACID EXTRACTABLES

LAB NAME RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/91 ANALYSIS DATE 12/02/91

SAMPLE NO. MW-8

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Acenaphthene Anthracene Benzo(a) anthracene Benzo(b) fluoranthene Benzo(c) fluoranthene Benzo(a) pyrene Benzo(g,h,i) perylene Benzo(g,h,i) perylene Benzidine Bis(2-chloroethyl) ether Bis(2-chloroethyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chlorojphenyl) ether Butyl benzyl phthalate 4-Chloro-3-methylphenol 2-Chloronaphthalene 2-Chloronaphthalene 2-Chlorophenol 4-Chlorophenylphenylether Chrysene Dibenzo(a,h) anthracene Di-n-butyl phthalate 1,2-Dichlorobenzene 1,4-Dichlorobenzene 1,4-Dichlorobenzene 1,4-Dichlorobenzene 3,3'-Dichlorobenzidine 2,4-Dinitrotoluene 1,2-Diphenyl hydrazine 2,4-Dinitrotoluene 2,6-Dinitrotoluene Di-n-octylphthalate Fluorene Hexachlorobenzene Hexachlorobenzene Hexachlorobenzene Hexachlorobenzene Hexachlorocyclopentadiene Hexachlorocyclopentadiene Hexachlorocethane	12 12 12 12 12 12 12 12 12 12 12 12 12 1	מממממממממממממממממממממממממממממממממממממממ

### ANALYTICAL RESULTS

# GAS CHROMATOGRAPHY/MASS SPECTROMETRY EXTRACTABLE LIBRARY COMPARISON SEARCH

SAMPLE I.D.:MW-7

JOB#:91-3386.28

FILE: 7167W

scan #	COMPOUND NAME	ESTIMATED CONCENTRATION (UNITS= UG/L)
872	OXYGENATED COMPOUND	6.4

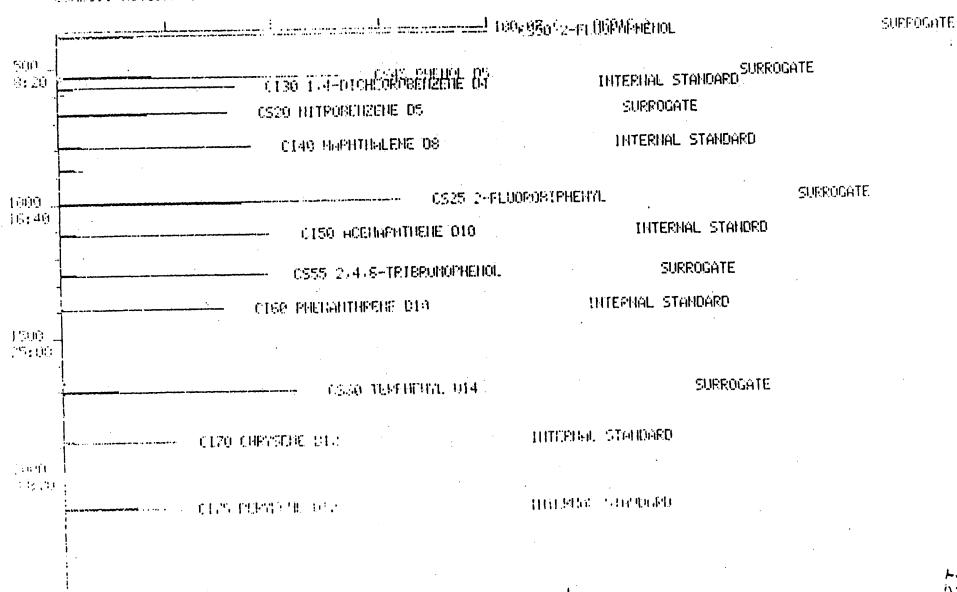
DATA FROM FILE: 7167M

SOMES 300 TO 2700 HOUNTRED: 12/01/01 0:45:00

CALT: 7167N #3

SAMPLE: MA7 JOB 3386 AP14450 St

CONDS.: AUTOSAMPLE 150M



BASE/NEUTRAL/ACID EXTRACTABLES

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/9 ANALYSIS DATE 12/01/5.

SAMPLE NO. MW-7

COMPOUND	RESULT	Q
Internal Standards		
(%Recovery) 1,4-Dichlorobenzene-D4 Naphthalene-D8 Acenaphthene-D10 Phenanthrene-D10 Chrysene-D12 Perylene-D12	113 111 123 117 86 98	
Surrogates		
(%Recovery) 2-Fluorophenol Phenol-D5 2,4,6-Tribromophenol Nitrobenzene-D5 2-Fluorobiphenyl Terphenyl-D14	61 41 84 72 72 72 84	

### RADIAN CORPORATION METHOD 8270 - SELECTED SEMIVOLATILE ORGANICS

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/91 ANALYSIS DATE 12/01/91

SAMPLE NO. MW-7

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Hydroquinone	12	ប

### RADIAN CORPORATION AOUEOUS MATRIX METHOD 625 BASE/NEUTRAL/ACID EXTRACTABLES

RECRA ENVIRONMENTAL INC. LAB NAME

JOB NO.

91-3386

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/5 ANALYSIS DATE 12/01/5

SAMPLE NO. MW-7

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Indeno(1,2,3-cd)pyrene Isophorone 2-Methyl-4,6-dinitrophenol Naphthalene Nitrobenzene 2-Nitrophenol 4-Nitrophenol N-nitrosodi-n-propylamine N-Nitrosodimethylamine N-Nitrosodiphenylamine Pentachlorophenol Phenanthrene Phenol Pyrene 1,2,4-Trichlorobenzene 2,4,6-Trichlorophenol	12 12 62 12 12 12 12 12 12 12 12 12 12 12 12	ממממממממממממממ -

### BASE/NEUTRAL/ACID EXTRACTABLES

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO. 91-3386

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/91 ANALYSIS DATE 12/01/91

SAMPLE NO. MW-7

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Acenaphthene Acenaphthylene Anthracene Benzo(a) anthracene Benzo(b) fluoranthene Benzo(a) pyrene Benzo(a) pyrene Benzo(a) pyrene Benzo(a) pyrene Benzidine Bis(2-chloroethyl) ether Bis(2-chloroethoxy) methane Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Butyl benzyl phthalate 4-Bromophenylphenylether Butyl benzyl phthalate 4-Chloro-3-methylphenol 2-Chloronaphthalene 2-Chlorophenol 4-Chlorophenol 4-Chlorophenylphthalate 1,2-Dichlorobenzene 1,3-Dichlorobenzene 1,4-Dichlorobenzene 1,4-Dichlorophenol Diethylphthalate 2,4-Dinitrophenol 1,2-Diphenyl hydrazine 2,4-Dinitrotoluene 2,6-Dinitrotoluene Di-n-octylphthalate Fluorene Hexachlorobenzene Hexachlorobenzene Hexachlorobenzene Hexachlorobenzene Hexachlorobethane Hexachlorocytlopentadiene Hexachlorocytlopentadiene	12 12 12 12 12 12 12 12 12 12 12 12 12 1	ממפמממממממממממממממממממממממממממממממממממ

### RADIAN CORPORATION METHOD 8270 - SELECTED SEMIVOLATILE ORGANICS

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE DATE 11/15/9 EXTRACTION DATE 11/22/9 ANALYSIS DATE 12/02/9

SAMPLE NO. MW-10

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Hydroquinone	10	U

### RADIAN CORPORATION AQUEOUS MATRIX METHOD 625 BASE/NEUTRAL/ACID EXTRACTABLES

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE DATE 11/15/9° EXTRACTION DATE 11/22/9 ANALYSIS DATE 12/02/91

SAMPLE NO. MW-10

	RESULT	Q
COMPOUND		
Internal Standards		
(%Recovery) 1,4-Dichlorobenzene-D4 Naphthalene-D8 Acenaphthene-D10 Phenanthrene-D10 Chrysene-D12 Perylene-D12	114 110 112 108 89 98	
Surrogates		_
(%Recovery) 2-Fluorophenol Phenol-D5 2,4,6-Tribromophenol Nitrobenzene-D5 2-Fluorobiphenyl Terphenyl-D14	48 29 76 71 69 78	

DATA FROM FILE: 7188M

COGNES 375 10 2520, ACQUIRED: 12/02/91 22:55:00 CALL: 7180H #8

SAMPLE: MUIO JOB 3386 API4456 57

20	CINO HAPATHALENS DO	INTERNAL STANDARD INTERNAL STANDARD	
 	CS25 2-F1.0096	BIPHENYL	SURPOGATE
40)	CISO REPRESENTATIONS CONTROLLED	INTERHAL STANDRO	
	CSSS 2.4.6-TRIBROMOPHEHOL	SURROGATE	
	C160 PHENOCHHPEUE 010	INTERNAL STANDARD	
,1:1 ; (10)			
		SURROGATE.	
j	CINO CONVENIENTE DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL DE LA CONTROL	ERHAL STANDARD	

### ANALYTICAL RESULTS

# GAS CHROMATOGRAPHY/MASS SPECTROMETRY EXTRACTABLE LIBRARY COMPARISON SEARCH

SAMPLE I.D.:MW-10

JOB#:91-3386.17

FILE: 7188W

SCAN #	COMPOUND NAME	ESTIMATED CONCENTRATION (UNITS= UG/L)
		·
		·
		•
·		

# RADIAN CORPORATION AQUEOUS MATRIX METHOD 625 BASE/NEUTRAL/ACID EXTRACTABLES

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE NO. FIELD BLANK

SAMPLE DATE 11/15/9 EXTRACTION DATE 11/22/9 ANALYSIS DATE 12/02/9

BASE/NEUTRAL/ACID EXTRACTABLES

LAB NAME RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE DATE 11/15/5 EXTRACTION DATE 11/22/5 ANALYSIS DATE 12/02/5

SAMPLE NO. FIELD BLANK

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Indeno(1,2,3-cd)pyrene Isophorone 2-Methyl-4,6-dinitrophenol Naphthalene Nitrobenzene 2-Nitrophenol 4-Nitrophenol N-nitrosodi-n-propylamine N-Nitrosodimethylamine N-Nitrosodiphenylamine Pentachlorophenol Phenanthrene Phenol Pyrene 1,2,4-Trichlorobenzene 2,4,6-Trichlorophenol	10 10 50 10 10 10 50 10 10 10 10 10	ממממממממממממממ

#### RADIAN CORPORATION METHOD 8270 - SELECTED SEMIVOLATILE ORGANICS

LAB NAME RECRA ENVIRONMENTAL INC. JOB NO. 91-3386

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/91 ANALYSIS DATE 12/02/91

SAMPLE NO. FIELD BLANK

COMPOUND (Units of Measure = UG/L )	RESULT	Q	
Hydroquinone	10	บ	

BASE/NEUTRAL/ACID EXTRACTABLES

LAB NAME JOB NO. RECRA ENVIRONMENTAL INC.

91-3386

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/9 ANALYSIS DATE 12/02/91

SAMPLE NO. FIELD BLANK

	RESULT	Q
COMPOUND		
Internal Standards		
(%Recovery) 1,4-Dichlorobenzene-D4 Naphthalene-D8 Acenaphthene-D10 Phenanthrene-D10 Chrysene-D12 Perylene-D12	117 115 117 113 93 99	
Surrogates		-
(%Recovery) 2-Fluorophenol Phenol-D5 2,4,6-Tribromophenol Nitrobenzene-D5 2-Fluorobiphenyl Terphenyl-D14	44 28 70 54 57 81	

SCAUS 355 TO 2520 ACQUIRED: 12/02/91 23:47:00 DATA FROM FILE: 7189M CALI: 7189M #3 Field SAMPLE: ÉTTETELANK JOB 3336 ANTA-458/59 COMOS.: AUTOSAMPLE ISOM -0.2016.)100, 112 to Some CLOST ATTICAL PROBENZENE DA 8:30 SURROGATE CAZO HITROGENZENE DS INTERNAL STANDARD CI40 HIGHTHOLENE DS SURROGATE 0325 2-PLUOPOSIPHENYL 11000 16:40 INTERNAL STANDRO CISS ACEHAPHTHENE 010 SURROGATE CS55 2,4.6-TRIBROMOPHENOL INTERNAL STANDARD CTED PHEHINITHPEHE 010 1500 250 (33) SUPPOGATE CK30 TERPHENYL D14 THIERNAL STANDARD CLIFO CHRYSENE DIZ 11:11: +1.0THE PHOL STANDARD PERSONAL PROPERTY.

### ANALYTICAL RESULTS

## GAS CHROMATOGRAPHY/MASS SPECTROMETRY EXTRACTABLE LIBRARY COMPARISON SEARCH

SAMPLE I.D.: FIELD BLANK

JOB#:91-3386.18

FILE: 7189W

SCAN #	COMPOUND NAME	ESTIMATED CONCENTRATION (UNITS= UG/L)
		·

## BASE/NEUTRAL/ACID EXTRACTABLES

LAB NAME RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE NO. TRIP BLANK

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/91 ANALYSIS DATE 12/03/91

COMPOUND	•	RESULT	Q
(Units of Measure = UG/L	)	140647	
Acenaphthene Acenaphthylene Anthracene Benzo(a) anthracene Benzo(b) fluoranthene Benzo(a) pyrene Benzo(a) pyrene Benzo(g, h, i) perylene Benzidine Bis(2-chloroethyl) ether Bis(2-chlorothoxy) methane Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Busyl phthalate 4-Bromophenylphenylether Butyl benzyl phthalate 4-Chloro-3-methylphenol 2-Chloronaphthalene 2-Chlorophenol 4-Chlorophenol 4-Chlorophenylphenylether Chrysene Dibenzo(a,h) anthracene Di-n-butyl phthalate 1,2-Dichlorobenzene 1,3-Dichlorobenzene 1,4-Dichlorobenzene 1,4-Dichlorobenzene 2,4-Dinitrotoluene 2,4-Dinitrotoluene 2,4-Dinitrotoluene 2,6-Dinitrotoluene Di-n-octylphthalate Fluoranthene Fluorene Hexachlorobenzene Hexachlorobenzene Hexachlorobenzene Hexachlorobenzene Hexachlorobenzene Hexachlorobenzene Hexachlorobenzene Hexachlorobenzene Hexachlorobenzene Hexachlorobethane		10 10 10 10 10 10 10 10 10 10 10 10 10 1	מממממממממממממממממממממממממממממממממממממממ

### RADIAN CORPORATION AQUEOUS MATRIX METHOD 625 BASE/NEUTRAL/ACID EXTRACTABLES

LAB NAME RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE DATE 11/15/9 EXTRACTION DATE 11/22/9 ANALYSIS DATE 12/03/91

SAMPLE NO. TRIP BLANK

COMPOUND	DDOTH III	
(Units of Measure = UG/L )	RESULT	Q
Indeno(1,2,3-cd)pyrene Isophorone 2-Methyl-4,6-dinitrophenol Naphthalene Nitrobenzene 2-Nitrophenol 4-Nitrophenol N-nitrosodi-n-propylamine N-Nitrosodimethylamine N-Nitrosodiphenylamine Pentachlorophenol Phenanthrene Phenol Pyrene 1,2,4-Trichlorobenzene 2,4,6-Trichlorophenol	10 10 50 10 10 10 50 10 10 50 0.93 10 10	ממממתממממממממ - -

#### RADIAN CORPORATION METHOD 8270 - SELECTED SEMIVOLATILE ORGANICS

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/91 ANALYSIS DATE 12/03/91

SAMPLE NO. TRIP BLANK

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Hydroquinone	10	U

### RADIAN CORPORATION AQUEOUS MATRIX METHOD 625 BASE/NEUTRAL/ACID EXTRACTABLES

RECRA ENVIRONMENTAL INC. LAB NAME

JOB NO.

91-3386

SAMPLE DATE 11/15/91 EXTRACTION DATE 11/22/9 ANALYSIS DATE 12/03/9

SAMPLE NO. TRIP BLANK

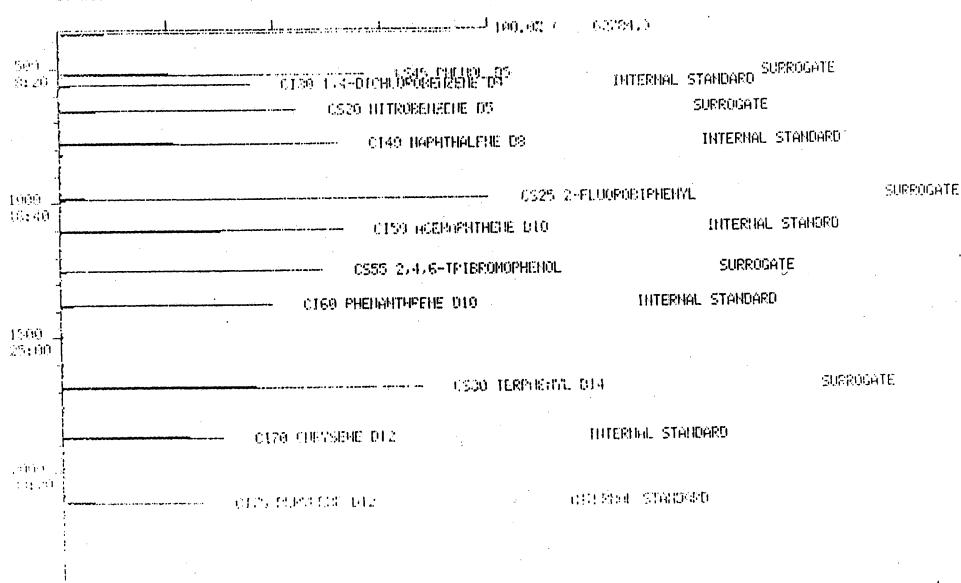
COMPOUND	RESULT	Q
Internal Standards		
(%Recovery) 1,4-Dichlorobenzene-D4 Naphthalene-D8 Acenaphthene-D10 Phenanthrene-D10 Chrysene-D12 Perylene-D12	104 103 105 105 83 94	
Surrogates		
(%Recovery) 2-Fluorophenol Phenol-D5 2,4,6-Tribromophenol Nitrobenzene-D5 2-Fluorobiphenyl Terphenyl-D14	50 34 63 67 70 79	

DATH FROM FILE: 7190M 900MS 955 TO 2520 ACOUTED: 12/03/91 0:39:00

CALT: 7190W #3

SAMPLE: TRIPBLANK JOB 3386 OPT-M68-61

COMDS.: AUTOSAMPLE 150M



### ANALYTICAL RESULTS

# GAS CHROMATOGRAPHY/MASS SPECTROMETRY EXTRACTABLE LIBRARY COMPARISON SEARCH

SAMPLE I.D.:TRIP BLANK

JOB#:91-3386.19

FILE: 7190W

SCAN #	COMPOUND NAME	ESTIMATED CONCENTRATION (UNITS= UG/L)

## BASE/NEUTRAL/ACID EXTRACTABLES

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

DESC

SEMIVOLATILE METHOD BLANK

SAMPLE NO. SBLK87

EXTRACTION DATE 11/22/9: ANALYSIS DATE 11/30/9:

COMPOUND (Units of Measure = UG/L )		RES	ULT	Q
			1:0	บ
Acenaphthene			10	ש
Acenaphthylene			10	ט
Anthracene			10	ับ
Benzo (a) anthracene			10	ט
Benzo (b) fluoranthene			10	U
Benzo(k)fluoranthene			10	ט
Benzo(a)pyrene			10	U
Benzo(g,h,i)perylene			80	U
Benzidine			10	U
Bis(2-chloroethyl)ether			10	ע _
Bis(2-chlorethoxy)methane			10	ט
Bis(2-chloroisopropyl)ether			10	U
Bis(2-ethylhexyl)phthalate			10	ប
4-Bromophenylphenylether			10	Ū
Butyl benzyl phthalate			10	Ū
4-Chloro-3-methylphenol	1		10	Ü
2-Chloronaphthalene	•	<b></b> -	10	บั
2-Chlorophenol			10	Ü
4-Chlorophenylphenylether		<b>-</b> .		ŭ
Chrysene	į		10	Ü
Dibenzo(a,h)anthracene	1		10	Ü
Di-n-butyl phthalate	ĺ		10	Ü
1,2-Dichlorobenzene			10	
1,3-Dichlorobenzene			10	Ū
1.4-Dichlorobenzene			10	U
3,3'-Dichlorobenzidine			20	Ū
2,4-Dichlorophenol			10	ַ
Diethylphthalate			10	U
2,4-Dimethylphenol	,		10	U
Dimethylphthalate	l		10	U
2,4-Dinitrophenol			50	U
1,2-Diphenyl hydrazine	ĺ		80	ט
2,4-Dinitrotoluene			10	ש
2,6-Dinitrotoluene			10	U
	**		10	U
Di-n-octylphthalate Fluoranthene			10	Ū
Fluorene			10	U
Hexachlorobenzene	Ì		10	ט
Hexachlorobutadiene			10	ט
Hexaciioiobuladiene	1		10	ט
Hexachlorocyclopentadiene Hexachloroethane	1.		10	Ū

### RADIAN CORPORATION AQUEOUS MATRIX METHOD 625 BASE/NEUTRAL/ACID EXTRACTABLES

LAB NAME RECRA ENVIRONMENTAL INC.

JOB NO.

DESC

91-3386

SEMIVOLATILE METHOD BLANK SAMPLE NO. SBLK87

EXTRACTION DATE 11/22/: ANALYSIS DATE 11/30/9

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Indeno(1,2,3-cd)pyrene Isophorone 2-Methyl-4,6-dinitrophenol Naphthalene Nitrobenzene 2-Nitrophenol 4-Nitrophenol N-nitrosodi-n-propylamine N-Nitrosodimethylamine N-Nitrosodiphenylamine Pentachlorophenol Phenanthrene Phenol Pyrene 1,2,4-Trichlorobenzene 2,4,6-Trichlorophenol	10 10 50 10 10 10 10 10 10 10 10 10	ממממממממממממממ -

### RADIAN CORPORATION METHOD 8270 - SELECTED SEMIVOLATILE ORGANICS

LAB NAME RECRA ENVIRONMENTAL INC.

JOB NO.

DESC

91-3386 SEMIVOLATILE METHOD BLANK

SAMPLE NO. SBLK87

EXTRACTION DATE 11/22/9 ANALYSIS DATE 11/30/9

COMPOUND (Units of Measure = UG/L )	RESULT	Q	
Hydroquinone	10	บ	

## BASE/NEUTRAL/ACID EXTRACTABLES

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

DESC

SEMIVOLATILE METHOD BLANK

EXTRACTION DATE 11/22/9 ANALYSIS DATE 11/30/9

115

SAMPLE NO. SBLK87

Terphenyl-D14

Q RESULT COMPOUND. Internal Standards (%Recovery) 89 1,4-Dichlorobenzene-D4 84 Naphthalene-D8 86 Acenaphthene-D10 87 Phenanthrene-D10 63 Chrysene-D12 68 Perylene-D12 Surrogates (%Recovery) 57 2-Fluorophenol 37 Phenol-D5 85 2,4,6-Tribromophenol 73 Nitrobenzene-D5 68 2-Fluorobiphenyl

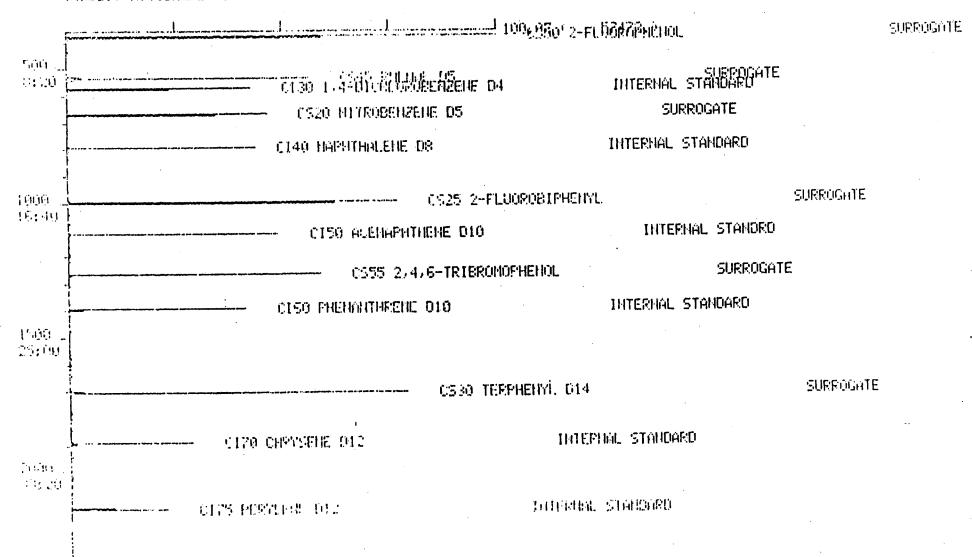
DHIA FROM FILE: 7159M

SCHIRS DEG TO 2520 ACCUIRCD: 11/30/91 17:55:00

CALT: 7150M #3

SAMPLE: SPLK87 JOB 3386 AP14424-75

CONDS.: AUTOSAMPLR 150W



### ANALYTICAL RESULTS

# GAS CHROMATOGRAPHY/MASS SPECTROMETRY EXTRACTABLE LIBRARY COMPARISON SEARCH

SAMPLE I.D.:SBLK 87

JOB#:91-3386.20

FILE: 7159W

SCAN #	COMPOUND NAME	ESTIMATED CONCENTRATION (UNITS= UG/L)		
		·		
.07				
		·		

METALS DATA



RECRA ENVIRONMENTAL, INC.

## RADIAN CORPORATION AQUEOUS MATRIX TOTAL METALS

LAB NAME JOB NO.

RECRA ENVIRONMENTAL INC. 91-3386

SAMPLE DATE 11/15/91

SAMPLE NO. MW-1

COMPOUND	UNIT OF MEASURE	METHOD NUMBER	ANALYSIS DATE	RESULT	Q
Total Chromium Total Silver	MĠ/L MG/L	218.1 272.1	11/25/91 11/25/91	0.01 0.01	U

JOB NO. DESC

RECRA ENVIRONMENTAL INC. 91-3386

MW-1 FIELD DUP

SAMPLE NO. FIELD DUP

SAMPLE DATE 11/15/91

COMPOUND	UNIT OF MEASURE		ANALYSIS DATE	RESULT	Q
Total Chromium Total Silver	MG/L MG/L	218.1 272.1	11/25/91 11/25/91	0.011	บ

LAB NAME JOB NO.

RECRA ENVIRONMENTAL INC. 91-3386

SAMPLE DATE 11/15/91

	UNIT OF MEASURE		ANALYSIS DATE	RESULT	Q
Total Chromium Total Silver	MG/L MG/L	218.1 272.1	11/25/91 11/25/91	0.064 0.01	υ

LAB NAME JOB NO.

RECRA ENVIRONMENTAL INC.

91-3386

SAMPLE DATE 11/15/91

COMPOUND	UNIT OF MEASURE		ANALYSIS DATE	RESULT	Q
	MG/L MG/L	218.1 272.1	11/25/91 11/25/91	0.03 0.01	υ .

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE DATE 11/15/91

	UNIT OF MEASURE		ANALYSIS DATE	RESULT	Q
Total Chromium Total Silver	MG/L MG/L	218.1 272.1	11/25/91 11/25/91		

LAB NAME

RECRA ENVIRONMENTAL INC. 91-3386

JOB NO.

SAMPLE DATE 11/15/91

	UNIT OF MEASURE		ANALYSIS DATE	RESULT	Q
Total Chromium Total Silver	MG/L MG/L	218.1 272.1	11/25/91 11/25/91	0.02 0.01	U

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE DATE 11/15/91

COMPOUND	UNIT OF MEASURE		ANALYSIS DATE	RESULT	Ç ·
Total Chromium Total Silver	MG/L MG/L	218.1 272.1	11/25/91 11/25/91	0.13 0.01	

LAB NAME RECRA ENVIRONMENTAL INC. JOB NO. 91-3386

SAMPLE DATE 11/15/91

COMPOUND	UNIT OF MEASURE		ANALYSIS DATE	RESULT	Q
Total Chromium Total Silver	MG/L MG/L	218.1 272.1	11/25/91 11/25/91	0.065 0.01	

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE DATE 11/15/91

COMPOUND	UNIT OF MEASURE		ANALYSIS DATE	RESULT	Q
Total Chromium Total Silver	MG/L MG/L	218.1 272.1	11/25/91 11/25/91		U U

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE NO. MW-9

SAMPLE DATE 11/15/91

COMPOUND	UNIT OF MEASURE		ANALYSIS DATE	RESULT	Q
Total Chromium Total Silver	MG/L MG/L	218.1 272.1	11/25/91 11/25/91		U U

LAB NAME

RECRA ENVIRONMENTAL INC. 91-3386

JOB NO.

SAMPLE DATE 11/15/91

COMPOUND	UNIT OF MEASURE		ANALYSIS DATE	RESULT	Q
Total Chromium Total Silver	MG/L MG/L	218.1 272.1	11/25/91 11/25/91	0.01 0.011	U

SAMPLE DATE 11/15/91

## RADIAN CORPORATION AQUEOUS MATRIX TOTAL METALS

LAB NAME

RECRA ENVIRONMENTAL INC.

91-3386

JOB NO. SAMPLE NO. FIELD BLANK

COMPOUND	UNIT OF MEASURE	METHOD NUMBER	ANALYSIS DATE	RESULT	Q
Total Chromium Total Silver	MG/L MG/L	218.1 272.1	11/25/91 11/25/91	0.016 0.01	บ

LAB NAME

RECRA ENVIRONMENTAL INC. 91-3386

JOB NO.

SAMPLE DATE 11/15/91

SAMPLE NO. TRIP BLANK

COMPOUND	UNIT OF MEASURE		ANALYSIS DATE	RESULT	Q
Total Chromium Total Silver	MG/L	218.1	11/25/91	0.01	U
	MG/L	272.1	11/25/91	0.01	U

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE NO. METHOD BLANK

COMPOUND	UNIT OF MEASURE		ANALYSIS DATE	RESULT	Q
Total Chromium Total Silver	MG/L MG/L	218.1 272.1	11/25/91 11/25/91	0.01	U U

LAB NAME JOB NO.

RECRA ENVIRONMENTAL INC.

91-3386

SAMPLE DATE 11/15/9:

	METHOD NUMBER	ANALYSIS DATE	RESULT	Q
Hexavalent Chromium	7195	11/16/91	0.01	U

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

DESC MW-1 FIELD DUP SAMPLE NO. FIELD DUP

SAMPLE DATE 11/15/91

COMPOUND (Units of Measure = MG/L )	METHOD NUMBER	ANALYSIS DATE	RESULT	Q
	7195	11/16/91	0.01	บ
Hexavalent Chromium	<u> </u>	<u> </u>		

LAB NAME JOB NO.

RECRA ENVIRONMENTAL INC. 91-3386

SAMPLE DATE 11/15/9:

SAMPLE NO. MW-2

COMPOUND (Units of Measure = MG/L )	METHOD NUMBER	ANALYSIS DATE	RESULT /	Q	-
	7195	11/16/91	0.016		
Hexavalent Chromium					

146

LAB NAME

RECRA ENVIRONMENTAL INC. 91-3386

JOB NO.

SAMPLE DATE 11/15/9:

( CHUPCHILL)	METHOD NUMBER	ANALYSIS DATE	RESULT	Q
Hexavalent Chromium	7195	11/16/91	0.01	U

LAB NAME RECRA ENVIRONMENTAL INC. 91-3386

SAMPLE DATE 11/15/91

COMPOUND (Units of Measure = MG/L )	METHOD NUMBER	ANALYSIS DATE	RESULT	Q
Hexavalent Chromium	7195	11/16/91	0.01	ט
Hexavalent Chromitan				

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE DATE 11/15/9

1 COME COME	METHOD NUMBER	ANALYSIS DATE	RESULT	Q
Hexavalent Chromium	7195	11/16/91	0.01	U

LAB NAME JOB NO.

RECRA ENVIRONMENTAL INC.

91-3386

SAMPLE DATE 11/15/91

COMPOUND (Units of Measure = MG/L )	METHOD NUMBER	ANALYSIS DATE	RESULT	Q
Hexavalent Chromium	7195	11/16/91	0.01	U

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE DATE 11/15/91

COMPOUND (Units of Measure = MG/L )	METHOD NUMBER	ANALYSIS DATE	RESULT	Q
Hexavalent Chromium	7195	11/16/91	0.028	<u></u>

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE DATE 11/15/97

	METHOD NUMBER	ANALYSIS DATE	RESULT	Q
Hexavalent Chromium	7195	11/16/91	0.01	U

LAB NAME JOB NO.

RECRA ENVIRONMENTAL INC.

91-3386

SAMPLE DATE 11/15/9:

1 AMEGUND	METHOD NUMBER	ANALYSIS DATE	RESULT	Q
	7195	11/16/91	0.01	U

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE DATE 11/15/9

COMPOUND (Units of Measure = MG/L )	METHOD NUMBER	ANALYSIS DATE	RESULT	Q
Hexavalent Chromium	7195	11/16/91	0.01	U

LAB NAME JOB NO.

RECRA ENVIRONMENTAL INC.

91-3386

SAMPLE DATE 11/15/91

SAMPLE NO. FIELD BLANK

COMPOUND (Units of Measure = MG/L )	METHOD NUMBER	ANALYSIS DATE	RESULT	Q
Hexavalent Chromium	7195	11/16/91	0.01	บ

LAB NAME RECRA ENVIRONMENTAL INC. JOB NO. 91-3386

SAMPLE NO. METHOD BLANK

COMPOUND (Units of Measure = MG/L )	METHOD NUMBER	ANALYSIS DATE	RESULT	Q
Hexavalent Chromium	7195	11/16/91	0.01	U

146

WATER QUALITY DATA



LAB NAME RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE DATE 11/15/91

COMPOUND	UNIT OF MEASURE	•	ANALYSIS DATE	RESULT	Ç
Total Cyanide Total Rec. Petro. Hydrocarbons Formaldehyde	mg/l mg/l mg/l		11/25/91 11/18/91 11/22/91		บ บ

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO. 91-3386
DESC MW-1 FIELD DUP
SAMPLE NO. FIELD DUP

SAMPLE DATE 11/15/91

COMPOUND	UNIT OF MEASURE		ANALYSIS DATE	RESULT	Q.
Total Cyanide	mg/l	9010	11/25/91	0.01	U
Total Rec. Petro. Hydrocarbons	mg/l	418.1	11/18/91	0.61	
Formaldehyde	mg/l	*	11/22/91	0.11	

LAB NAME JOB NO.

RECRA ENVIRONMENTAL INC.

91-3386

SAMPLE DATE 11/15/91

COMPOUND	UNIT OF MEASURE		ANALYSIS DATE	RESULT	Q
Total Cyanide Total Rec. Petro. Hydrocarbons Formaldehyde	mg/l mg/l mg/l	9010 418.1 *	11/25/91 11/18/91 11/22/91		ט ט

LAB NAME RECRA ENVIRONMENTAL INC. JOB NO. 91-3386

SAMPLE DATE 11/15/91

COMPOUND	UNIT OF MEASURE		ANALYSIS DATE	RESULT	Q
Total Cyanide	mg/l	9010	11/25/91	0.11	<b>U</b>
Total Rec. Petro. Hydrocarbons	mg/l	418.1	11/18/91	0.5	
Formaldehyde	mg/l	*	11/22/91	0.26	

LAB NAME RECRA EN JOB NO. 91-3386

RECRA ENVIRONMENTAL INC.

SAMPLE DATE 11/15/91

COMPOUND	UNIT OF MEASURE		ANALYSIS DATE	RESULT	Q
Total Cyanide	mg/l	9010	11/25/91	0.01	U
Total Rec. Petro. Hydrocarbons	mg/l	418.1	11/18/91	1.3	
Formaldehyde	mg/l	*	11/22/91	0.21	

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE DATE 11/15/91

COMPOUND	UNIT OF MEASURE	METHOD NUMBER	ANALYSIS DATE	RESULT	Q
Total Cyanide Total Rec. Petro. Hydrocarbons Formaldehyde	mg/l mg/l mg/l	9010 418.1 *	11/25/91 11/18/91 11/22/91	0.5	บ บ

LAB NAME RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE DATE 11/15/91

COMPOUND	UNIT OF MEASURE		ANALYSIS DATE	RESULT	ς
Total Cyanide Total Rec. Petro. Hydrocarbons Formaldehyde	mg/l mg/l mg/l	9010 418.1 *	11/25/91 11/18/91 11/22/91		

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE DATE 11/15/91

I COME OUMS	UNIT OF MEASURE		ANALYSIS DATE	RESULT	Q
Total Cyanide	mg/l	9010	11/25/91	0.24	Ū ·
Total Rec. Petro. Hydrocarbons	mg/l	418.1	11/18/91	1.1	
Formaldehyde	mg/l	*	11/22/91	0.084	

LAB NAME RECRA ENVIRONMENTAL INC. JOB NO. 91-3386

SAMPLE DATE 11/15/91

COMPOUND	UNIT OF MEASURE	METHOD NUMBER	ANALYSIS DATE	RESULT	Q
Total Cyanide	mg/l	9010	11/25/91	0.017	U
Total Rec. Petro. Hydrocarbons	mg/l	418.1	11/18/91	5.2	
Formaldehyde	mg/l	*	11/22/91	0.084	

#### RADIAN CORPORATION AQUEOUS MATRIX WATER QUALITY TESTING

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE DATE 11/15/91

SAMPLE NO. MW-9

COMPOUND	UNIT OF MEASURE		ANALYSIS DATE	RESULT	Q
Total Cyanide Total Rec. Petro. Hydrocarbons Formaldehyde	mg/l mg/l mg/l	9010 418.1 *	11/25/91 11/18/91 11/22/91	0.01 1.5 0.084	U U

#### RADIAN CORPORATION AQUEOUS MATRIX WATER QUALITY TESTING

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE DATE 11/15/91

SAMPLE NO. MW-10

COMPOUND	UNIT OF MEASURE	METHOD NUMBER	ANALYSIS DATE	RESULT	Q
Total Cyanide Total Rec. Petro. Hydrocarbons Formaldehyde	mg/l mg/l mg/l	9010 418.1 *	11/25/91 11/18/91 11/22/91	0.01 0.5 0.09	n n

# RADIAN CORPORATION AQUEOUS MATRIX WATER QUALITY TESTING

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3386

SAMPLE DATE 11/15/91

SAMPLE NO. FIELD BLANK

COMPOUND	UNIT OF MEASURE		ANALYSIS DATE	RESULT	Q
Total Cyanide	mg/l	9010	11/25/91	0.5	U
Total Rec. Petro. Hydrocarbons	mg/l	418.1	11/18/91		U
Formaldehyde	mg/l	*	11/22/91		U

## RADIAN CORPORATION AQUEOUS MATRIX WATER QUALITY TESTING

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO. 91-3386

SAMPLE DATE 11/15/91

SAMPLE NO. TRIP BLANK

COMPOUND	UNIT OF MEASURE	ANALYSIS DATE	RESULT	Q
Total Cyanide Total Rec. Petro. Hydrocarbons Formaldehyde	mg/l mg/l mg/l	11/25/91 11/18/91 11/22/91		U U

## RADIAN CORPORATION AQUEOUS MATRIX WATER QUALITY TESTING

LAB NAME JOB NO.

RECRA ENVIRONMENTAL INC.

91-3386

SAMPLE NO. METHOD BLANK

COMPOUND	UNIT OF MEASURE		ANALYSIS DATE	RESULT	Q
Total Cyanide	mg/l	9010	11/25/91	0.01	บ
Total Rec. Petro. Hydrocarbons	mg/l	418.1	11/18/91	0.5	บ
Formaldehyde	mg/l	*	11/22/91	0.084	บ

## ORGANIC DATA COMMENT PAGE

Laboratory Name RECRA ENVIRONMENTAL, INC.

USEPA Defined Organic Data Qualifiers:

- U Indicates compound was analyzed for but not detected.
- J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed, or when the mass spectral data indicate the presence of a compound that meets the identification criteria but the result is less than the sample quantitation limit but greater than zero.
- C This flag applies to pesticide results where the identification has been confirmed by GC/MS.
- B This flag is used when the analyte is found in the associated blank as well as in the sample.
- E This flag identifies compounds whose concentrations exceed the calibration range of the GC/MS instrument for that specific analysis.
- D This flag identifies all compounds identified in an analysis at a secondary dilution factor.
- G The TCLP Matrix Spike recovery was greater than the upper limit of the analytical method.
- L The TCLP Matrix Spike recovery was lower than the lower limit of the analytical method.
- T This flag is used when the analyte is found in the associated TCLP extraction as well as in the sample.



## INORGANIC DATA COMMENT PAGE

Laboratory Name <u>RECRA ENVIRONMENTAL</u>, INC.

USEPA Defined Inorganic Data Qualifiers:

- B Indicates a value greater than or equal to the instrument detection limit but less than the contract required detection limit.
- U Indicates element was analyzed for but not detected. Report with the detection limit value (e.g., 100).
- E Indicates a value estimated or not reported due to the presence of interference.
- S Indicates value determined by Method of Standard Addition.
- N Indicates spike sample recovery is not within control limits.
- \* Indicates duplicate analysis is not within control limits.
- + Indicates the correlation coefficient for method of standard addition is less than 0.995.
- M Indicates duplicate injection results exceeded control limits.
- W Post digestion spike for Furnace AA analysis is out of control limits (85-115%), while sample absorbance is less than 50% of spike absorbance.
- G The TCLP Matrix Spike recovery was greater than the upper limit of the analytical method.
- L The TCLP Matrix Spike recovery was lower than the lower limit of the analytical method.



PROJECT	NO				SITE NAME Kodalux - Fau-lawn NJ			/		5/	Zi Zi	8/3	
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## RECRA ENVIRONMENTAL, INC.

CHAIN OF CUSTODY RECORD

PROJECT	NO				SITE NAME Kodalux - Faitaun NJ	NO										
SAMPLER			E)			OF CON TAINERS		ist/	//	' /			//			REMARKS
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## RECRA ENVIRONMENTAL, INC.



Chemical and Environmental Analysis Services

November 22, 1991

Ms. Lynn M. Moody Radian Corporation 155 Corporate Woods, Suite 100 Rochester, NY 14623

Re: Analytical Results

Dear Ms. Moody:

Please find enclosed results concerning the analyses of the samples recently submitted by your firm. The Pertinent Information regarding these analyses is listed below:

Quote #: NY91-945R

Project Name: Kodalux-Fairlawn, NJ

Matrix: Solid Drill Cuttings, Aqueous

Samples Received: 10/29/91

Sample Dates: 10/24,25,28/91

If you have any questions concerning these data, please contact Ms. Donna Bateman, Project Manager, at (716) 691-2600 and refer to the I.D. number listed below. It has been our pleasure to provide Radian Corporation with Environmental Testing Services. We look forward to serving you in the future.

Sincerely,

RECRA ENVIRONMENTAL, INC.

Kenneth C. Malinowski, PhD

Vice President

PJV/KCM/dms Enclosure

> I.D. #91-3161 #91-3161A #2A3811

#### ANALYTICAL RESULTS

#### Prepared For

Radian Corporation 155 Corporate Woods, Suite 100 Rochester, New York 14623

#### Prepared By

Recra Environmental, Inc. 10 Hazelwood Drive, Suite 106 Amherst, New York 14228-2298

#### METHODOLOGIES

The specific methodologies employed in obtaining the enclosed analytical results are indicated on the specific data table. The method numbers presented refer to the following U.S. Environmental Protection Agency reference.

o U.S. Environmental Protection Agency "Test Methods for Evaluating Solid Waste - Physical/Chemical Methods." Office of Solid Waste and Emergency Response. November 1986, SW-846, Third Edition.

#### COMMENTS

Comments pertain to data on one or all pages of this report.

The enclosed data has been reported utilizing USEPA data qualifiers (Q) as defined on the Organic and Inorganic Data Comment Pages.

Quality control analyses were performed on a batch basis. All results were within acceptable limits.

Results of the analysis of soils are corrected for moisture content and reported on a dry weight (103°C) basis.

Due to a laboratory oversite, sample Trip Blank was not analyzed for Total Recoverable Petroleum Hydrocarbons as requested on the Chain of Custody. Ms. Lynn Moody of Radian Corporation was notified on November 25, 1991 by Ms. Donna Bateman of Recra Environmental, Inc.



#### RADIAN CORPORATION SOIL MATRIX METHOD 8240 - HAZARDOUS SUBSTANCE LIST

VOLATILE ORGANICS

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3161 DRILL CUTTINGS DESC

SAMPLE NO. CUTTINGS

ANALYSIS DATE 10/31/91

SAMPLE DATE 10/25/91

		1
COMPOUND (Units of Measure = UG/KG )	RESULT	Q
Acetone Benzene Bromodichloromethane Bromoform Bromomethane Carbon disulfide Carbon tetrachloride Chlorobenzene Chlorodibromomethane Chloroethane Chloroform Chloromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethene trans-1,2-Dichloroethene 1,2-Dichloropropane trans-1,3-Dichloropropene cis-1,3-Dichloropropene cis-1,3-Dichloropropene Ethylbenzene 2-Hexanone Methyl ethyl ketone 4-Methyl-2-pentanone Methylene chloride Styrene 1,1,2,2-Tetrachloroethane Tetrachloroethene Toluene 1,1,1-Trichloroethane 1,1,2-Trichloroethane Trichloroethene Vinyl acetate Vinyl chloride Xylenes (Total)	11 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0	מממממממממממממממממממממממממממממ

DILUTION FACTOR = 1.0 % DRY = 93.5

#### RADIAN CORPORATION ADDITIONAL VOLATILE ORGANICS

LAB NAME RECRA ENVIRONMENTAL INC.

JOB NO.

DESC

91-3161 DRILL CUTTINGS

SAMPLE NO. CUTTINGS

**SAMPLE DATE 10/25/91** 

ANALYSIS DATE 10/31/9

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Trichlorofluoromethane 1,1,2-Trichloro-1,2,2-Trifluoroethane	5.0 5.0	U U

DILUTION FACTOR = 1.0 % DRY = 93.5

130

LAB NAME

RECRA ENVIRONMENTAL INC.

91-3161

JOB NO. DESC

DRILL CUTTINGS

SAMPLE NO. CUTTINGS

SAMPLE DATE 10/25/91

ANALYSIS DATE 10/31/91

	DECITION.	Q
COMPOUND	RESULT	<u> </u>
Internal Standards		
(%Recovery) Bromochloromethane 1,4-Difluorobenzene Chlorobenzene-D5	106 98 100	
Surrogates		
(%Recovery) p-Bromofluorobenzene 1,2-Dichloroethane-D4 Toluene-D8	99 98 98	-

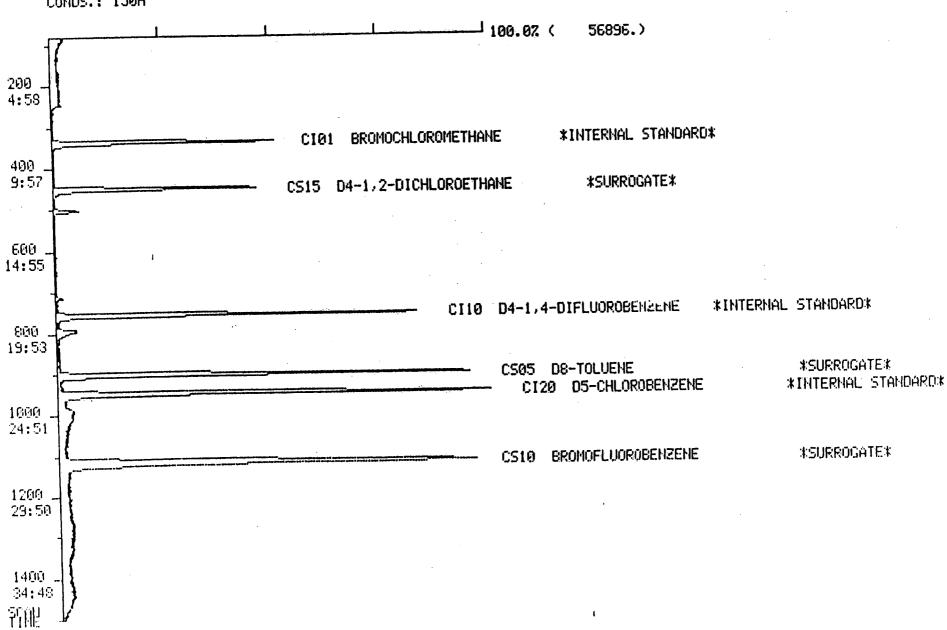
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80 TO 1500 ACQUIRED: 10/31/91 20:09:00 CALI: H6966 #3 SCANS

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SAMPLE: DRILL CUTTINGS

CONDS.: ISOH



LAB NAME RECRA ENVIRONMENTAL INC.

JOB NO.

91-3161

DESC

VOLATILE METHOD BLANK

SAMPLE NO. VBLK 40

ANALYSIS DATE 10/31/9:

COMPOUND (Units of Measure = UG/KG )	RESULT	Q
Acetone Benzene Bromodichloromethane Bromoform Bromomethane Carbon disulfide Carbon tetrachloride Chlorobenzene Chlorodibromomethane Chloroethane Chloroform Chloromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,2-Dichloroethene trans-1,2-Dichloroethene trans-1,3-Dichloropropene cis-1,3-Dichloropropene cis-1,3-Dichloropropene Ethylbenzene 2-Hexanone Methyl ethyl ketone 4-Methyl-2-pentanone Methylene chloride Styrene 1,1,2,2-Tetrachloroethane Tetrachloroethene Toluene 1,1,1-Trichloroethane 1,1,2-Trichloroethane Trichloroethene Vinyl acetate Vinyl chloride Xylenes (Total)	10 5.0 5.0 10 5.0 10 5.0 10 10 10 10 10 10 10 10 10 10 10 10 10	מממממממממממממממממממממממממממממ

DILUTION FACTOR = 1.0 % DRY = 100

## RADIAN CORPORATION ADDITIONAL VOLATILE ORGANICS

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3161

DESC

VOLATILE METHOD BLANK

SAMPLE NO. VBLK 40

ANALYSIS DATE 10/31/91

COMPOUND IIG (I. )	RESULT	Q
(Units of Measure = UG/L )  Trichlorofluoromethane 1,1,2-Trichloro-1,2,2-Trifluoroethane	5.0 5.0	U U

DILUTION FACTOR = 1.0 % DRY = 100

LAB NAME JOB NO.

RECRA ENVIRONMENTAL INC.

91-3161

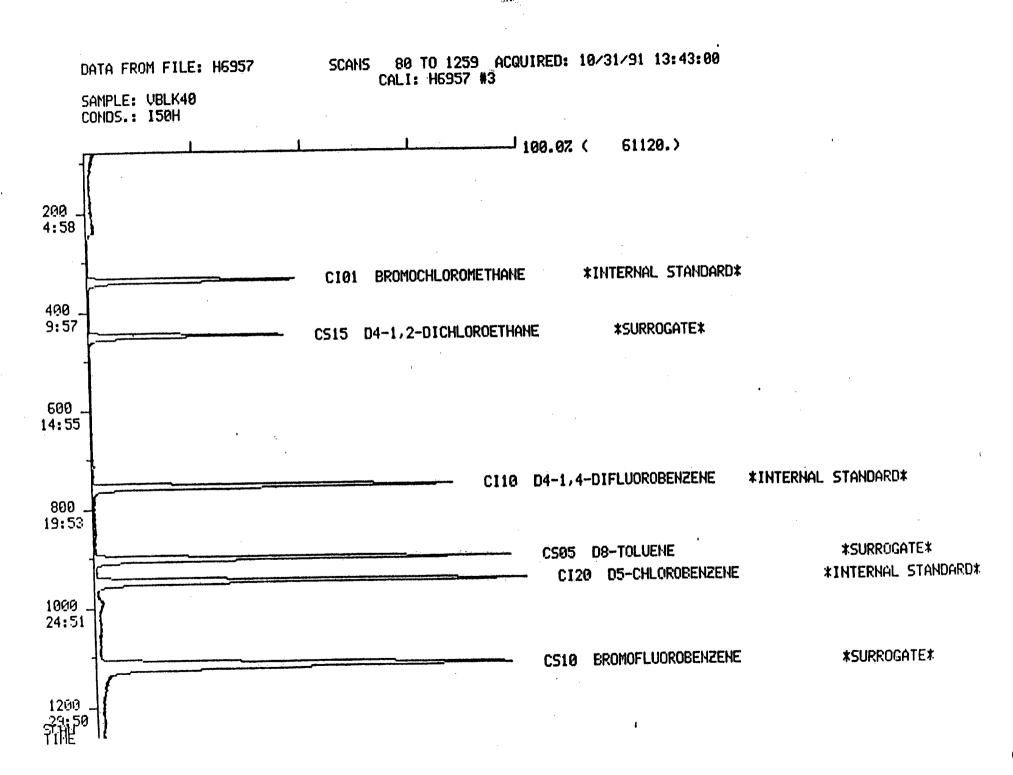
DESC

VOLATILE METHOD BLANK

SAMPLE NO. VBLK 40

ANALYSIS DATE 10/31/91

	RESULT	Q
COMPOUND		
Internal Standards		
(%Recovery) Bromochloromethane 1,4-Difluorobenzene Chlorobenzene-D5	110 108 105	
Surrogates		
(%Recovery) p-Bromofluorobenzene 1,2-Dichloroethane-D4 Toluene-D8	101 99 99	-



LAB NAME RECRA ENVIRONMENTAL INC. JOB NO. 91-3161

SAMPLE NO. TRIP BLANK

ANALYSIS DATE 11/01/91

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Acetone Benzene Bromodichloromethane Bromoform Bromomethane Carbon disulfide Carbon tetrachloride Chlorobenzene Chlorodibromomethane Chloroform Chloromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,1-Dichloroethene trans-1,2-Dichloropropane trans-1,3-Dichloropropene cis-1,3-Dichloropropene Ethylbenzene 2-Hexanone Methyl ethyl ketone 4-Methyl-2-pentanone Methylene chloride Styrene 1,1,2,2-Tetrachloroethane Tetrachloroethene Toluene 1,1,1-Trichloroethane 1,1,2-Trichloroethane Trichloroethene Vinyl acetate Vinyl chloride Xylenes (Total)	10 5.0 5.0 5.0 10 5.0 5.0 10 5.0 5.0 5.0 5.0 5.0 5.0 10 10 10 10 10 10 10 10 10 10 10 10 10	ממממממממממממממממממממממממממממממ

DILUTION FACTOR = 1.0

LAB NAME RECRA ENVIRONMENTAL INC. JOB NO. 91-3161

SAMPLE NO. TRIP BLANK

ANALYSIS DATE 11/01/9

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Trichlorofluoromethane 1,1,2-Trichloro-1,2,2-Trifluoroethane	5.0 5.0	บ บ

DILUTION FACTOR =

130

LAB NAME RECRA ENVIRONMENTAL INC.

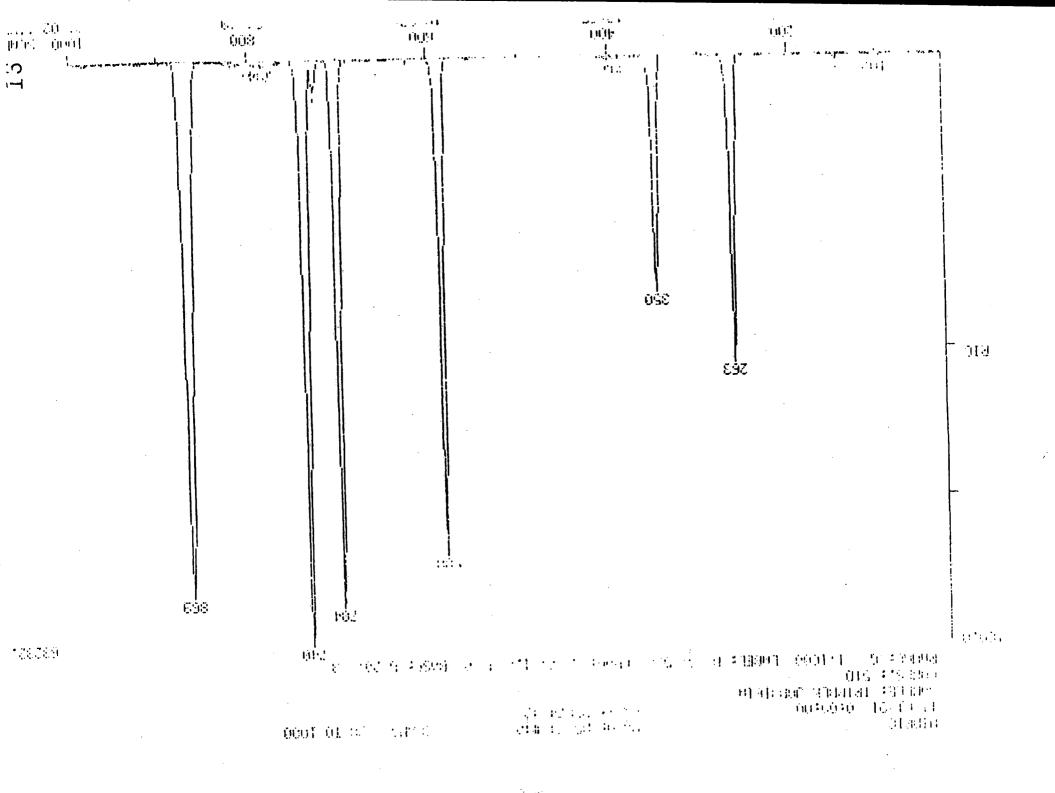
JOB NO.

91-3161

SAMPLE NO. TRIP BLANK

ANALYSIS DATE 11/01/9

	RESULT	Q
COMPOUND	KH5011	<del></del>
Internal Standards		
(%Recovery) Bromochloromethane 1,4-Difluorobenzene Chlorobenzene-D5 Surrogates	93 93 93	
(%Recovery) p-Bromofluorobenzene 1,2-Dichloroethane-D4 Toluene-D8	106 100 97	-



LAB NAME RECRA ENVIRONMENTAL INC.

DESC

JOB NO. 91-3161
DESC VOLATILE METHOD BLANK

SAMPLE NO. VBLK 79

ANALYSIS DATE 11/02/91

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Acetone Benzene Bromodichloromethane Bromoform Bromomethane Carbon disulfide Carbon tetrachloride Chlorobenzene Chlorodibromomethane Chloroform Chloromethane 1,1-Dichloroethane 1,2-Dichloroethane 1,1-Dichloroethene trans-1,2-Dichloroethene trans-1,3-Dichloropropane trans-1,3-Dichloropropene cis-1,3-Dichloropropene Ethylbenzene 2-Hexanone Methyl ethyl ketone 4-Methyl-2-pentanone Methylene chloride Styrene 1,1,2,2-Tetrachloroethane Tetrachloroethene Toluene 1,1,1-Trichloroethane 1,1,2-Trichloroethane Trichloroethene Vinyl acetate Vinyl chloride Xylenes (Total)	10 5.0 5.0 5.0 10 5.0 5.0 5.0 5.0 5.0 5.0 5.0 10 10 10 5.0 5.0 5.0 5.0 10 10 10 5.0 5.0 5.0 10 10 10 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.0 5.	מממממממממממממממממממממממממממממממ

DILUTION FACTOR = 1.0

LAB NAME RECRA ENVIRONMENTAL INC.

JOB NO. 91-3161

DESC

VOLATILE METHOD BLANK

SAMPLE NO. VBLK 79

ANALYSIS DATE 11/02/9

	RESULT	Q
COMPOUND		
Internal Standards		
(%Recovery) Bromochloromethane 1,4-Difluorobenzene Chlorobenzene-D5	96 95 94	U U U
Surrogates		
(%Recovery) p-Bromofluorobenzene 1,2-Dichloroethane-D4 Toluene-D8	103 97 99	ប ប ប -

## RADIAN CORPORATION ADDITIONAL VOLATILE ORGANICS

LAB NAME RECRA ENVIRONMENTAL INC.

JOB NO.

91-3161

DESC

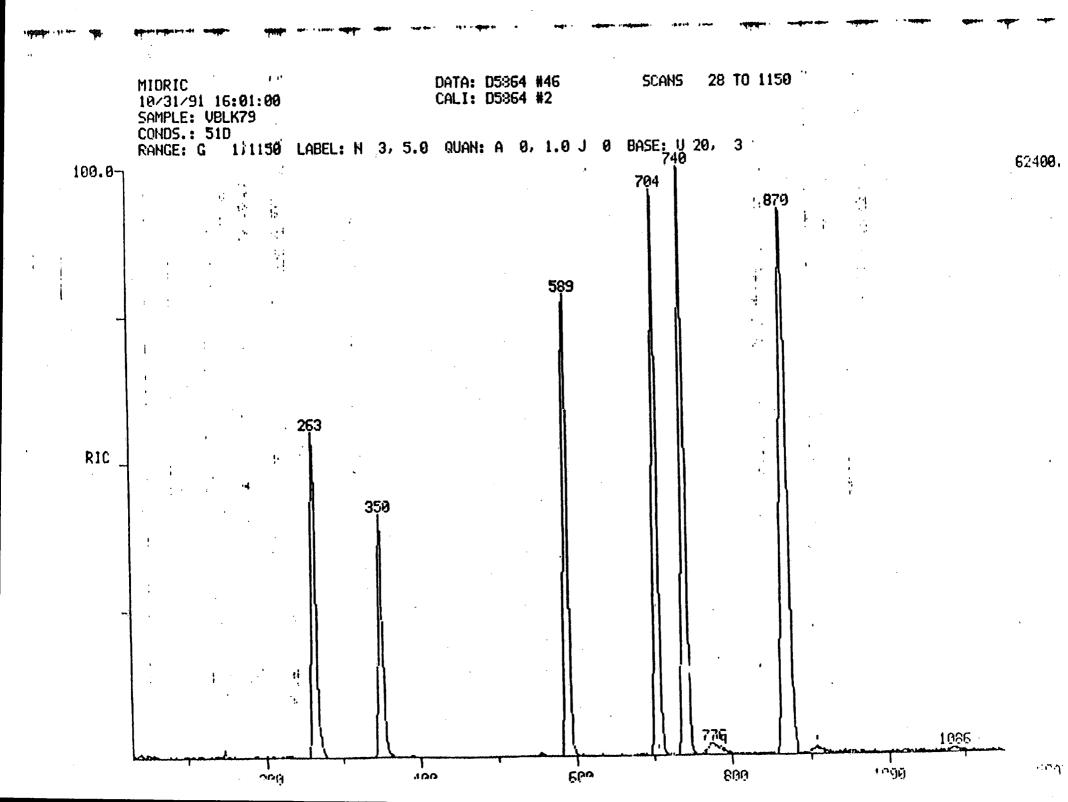
VOLATILE METHOD BLANK

SAMPLE NO. VBLK 79

COMPOUND (Units of Measure = UG/L )	RESULT	Q	
Trichlorofluoromethane 1,1,2-Trichloro-1,2,2-Trifluoroethane	5.0 5.0	บ บ	

DILUTION FACTOR = 1.0

130



## RADIAN CORPORATION SOIL MATRIX

## METHOD 8270 - HAZARDOUS SUBSTANCE LIST SEMIVOLATILE ORGANICS

LAB NAME RECRA ENVIRONMENTAL INC.

JOB NO. 91-3161

DESC DRILL CUTTINGS

SAMPLE NO. CUTTINGS

SAMPLE DATE 10/25/91 EXTRACTION DATE 11/08/91 ANALYSIS DATE 11/12/91

COMPOUND (Units of Measure = UG/KG )	RESULT	Q
Acenaphthylene Acenaphthene Anthracene Benzo(a) anthracene Benzo(b) fluoranthene Benzo(b) fluoranthene Benzo(s) fluoranthene Benzo(a) pyrene Benzoic Acid Benzyl Alcohol Bis(2-chloroethoxy) methane Bis(2-chloroethyl) ether Bis(2-chloroisopropyl) ether Bis(2-chloroisopropyl) ether Bis(2-ethylhexyl) phthalate 4-Bromophenyl phenyl ether Butyl benzyl phthalate 4-Chloroaniline p-Chloro-m-cresol 2-Chlorophenol 4-Chlorophenol 4-Chlorophenol 4-Chlorophenol 1,2-Dichlorobenzene 1,2-Dichlorobenzene 1,2-Dichlorobenzidine 2,4-Dichlorobenzidine 2,4-Dichlorobenzidine 2,4-Dimethyl phthalate 2,4-Dimethyl phthalate 4,6-Dinitro-o-cresol 2,4-Dinitrotoluene 2,6-Dinitrotoluene Di-n-butyl phthalate Fluoranthene Fluoranthene Fluorene Hexachlorobenzene Hexachlorobenzene Hexachlorobenzene Hexachlorocyclopentadiene Hexachlorocyclopentadiene Hexachlorocyclopentadiene Hexachlorocyclopentadiene Hexachlorocyclopentadiene Hexachlorocyclopentadiene Hexachlorocyclopentadiene Hexachlorocyclopentadiene Hexachlorocyclopentadiene Hexachlorocyclopentadiene Hexachlorocyclopentadiene Hexachlorocyclopentadiene	350 350 350 350 350 350 350 350 350 350	ממממממממממממממממממממממממממממממממממממממ

## RADIAN CORPORATION SOIL MATRIX

## METHOD 8270 - HAZARDOUS SUBSTANCE LIST SEMIVOLATILE ORGANICS

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3161

DESC

DRILL CUTTINGS

SAMPLE NO. CUTTINGS

SAMPLE DATE 10/25/9 EXTRACTION DATE 11/08/ ANALYSIS DATE 11/12/

		1
COMPOUND (Units of Measure = UG/KG )	RESULT	Q
<pre>(Units of Measure = UG/NG / Indeno(1,2,3-cd)pyrene Isophorone 2-Methylnapthalene 2-Methylphenol 4-Methylphenol Naphthalene 2-Nitroaniline 3-Nitroaniline 4-Nitroaniline Nitrobenzene 2-Nitrophenol 4-Nitrophenol N-nitroso-di-n-propylamine N-nitrosodiphenylamine Pentachlorophenol Phenanthrene Phenol Pyrene 1,2,4-Trichlorobenzene 2,4,5-Trichlorophenol 2,4,6-Trichlorophenol</pre>	350 350 350 350 350 350 1,800 1,800 350 350 350 350 350 350 350 350 350 3	מממממממממממממממממ

DILUTION FACTOR = 1.0 % DRY = 93.5

#### RADIAN CORPORATION METHOD 8270 - SELECTED SEMIVOLATILE ORGANICS

LAB NAME RECRA ENVIRONMENTAL INC.

JOB NO. 91-3161 DESC DRILL CUTTINGS

SAMPLE NO. CUTTINGS

SAMPLE DATE 10/25/9 EXTRACTION DATE 11/08/9 ANALYSIS DATE 11/12/9

COMPOUND (Units of Measure = UG/L )	RESULT	Q
3-Methylphenol Pyridine	350 350	บ บ

DILUTION FACTOR = 1.0 % DRY = 93.5

#### RADIAN CORPORATION SOIL MATRIX

## METHOD 8270 - HAZARDOUS SUBSTANCE LIST SEMIVOLATILE ORGANICS

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3161

DESC

DRILL CUTTINGS

SAMPLE NO. CUTTINGS

SAMPLE DATE 10/25/9 EXTRACTION DATE 11/08/9 ANALYSIS DATE 11/12/5

COMPOUND	RESULT	Q
Internal Standards		
(%Recovery) 1,4-Dichlorobenzene-D4 Naphthalene-D8 Acenaphthene-D10 Phenanthrene-D10 Chrysene-D12 Perylene-D12 Surrogates	91 81 92 100 106 102	
(%Recovery) 2-Fluorophenol Phenol-D5 2,4,6-Tribromophenol Nitrobenzene-D5 2-Fluorobiphenyl Terphenyl-D14	105 101 108 104 102 82	-

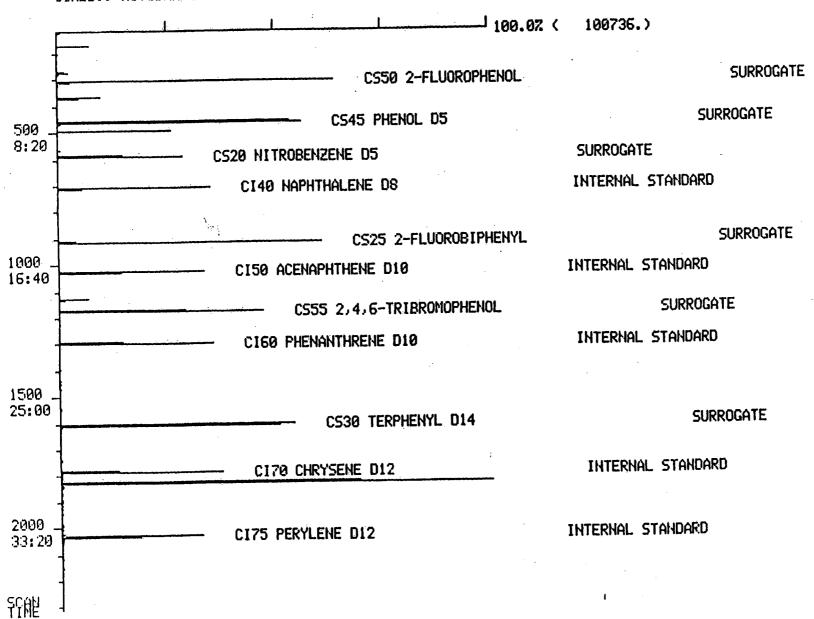
DATA FROM FILE: 9225X

SCANS 115 TO 2310 ACQUIRED: 11/12/91 18:41:00

CALI: 9225X #3

SAMPLE: DRILLCUTTING JOB 3161 BP3874A

CONDS.: AUTOSAMPLR ISOX



### RADIAN CORPORATION SOIL MATRIX

## METHOD 8270 - HAZARDOUS SUBSTANCE LIST SEMIVOLATILE ORGANICS

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3161

DESC

SEMIVOLATILE METHOD BLANK

EXTRACTION DATE 11/08/9 ANALYSIS DATE 11/12/9

SAMPLE NO. SBLK 86

COMPOUND (Units of Measure = UG/KG )	RESULT	Q
Acenaphthylene Acenaphthene Anthracene Benzo(a) anthracene Benzo(b) fluoranthene Benzo(c) fluoranthene Benzo(d) perylene Benzo(a) pyrene Benzoic Acid Benzyl Alcohol Bis(2-chloroethoxy) methane Bis(2-chloroethyl) ether Bis(2-chloroethyl) ether Bis(2-chloroethyl) penyl ether Bis(2-ethylhexyl) phthalate 4-Bromophenyl phenyl ether Butyl benzyl phthalate 4-Chloroaniline p-Chloro-m-cresol 2-Chloronaphthalene 2-Chlorophenol 4-Chlorophenol phenyl ether Chrysene Dibenzo(a,h) anthracene Dibenzofuran 1,3-Dichlorobenzene 1,4-Dichlorobenzene 1,4-Dichlorobenzene 2,4-Dinitrotophenol Diethyl phthalate 2,4-Dimethylphenol Dimethyl phthalate 2,4-Dinitrooluene 2,6-Dinitrotoluene 2,6-Dinitrotoluene Di-n-butyl phthalate Di-n-octyl phthalate Fluoranthene Fluorene Hexachlorobenzene Hexachlorobethane Hexachlorocyclopentadiene Hexachlorocyclopentadiene Hexachlorocyclopentadiene Hexachlorocyclopentadiene	330 330 330 330 330 330 330 330	מממממממממממממממממממממממממממממממממממממממ

DILUTION FACTOR = 1.0 % DRY = 100

#### RADIAN CORPORATION SOIL MATRIX

## METHOD 8270 - HAZARDOUS SUBSTANCE LIST SEMIVOLATILE ORGANICS

LAB NAME RECRA ENVIRONMENTAL INC.

JOB NO. 91-3161

DESC

SEMIVOLATILE METHOD BLANK

SAMPLE NO. SBLK 86

EXTRACTION DATE 11/08/9 ANALYSIS DATE 11/12/9

· · · · · · · · · · · · · · · · · · ·		
COMPOUND (Units of Measure = UG/KG )	RESULT	Q
Indeno(1,2,3-cd)pyrene Isophorone 2-Methylnapthalene 2-Methylphenol 4-Methylphenol Naphthalene 2-Nitroaniline 3-Nitroaniline 4-Nitroaniline Nitrobenzene 2-Nitrophenol 4-Nitrophenol N-nitroso-di-n-propylamine N-nitrosodiphenylamine Pentachlorophenol Phenanthrene Phenol Pyrene 1,2,4-Trichlorobenzene 2,4,5-Trichlorophenol 2,4,6-Trichlorophenol	330 330 330 330 330 1,600 1,600 330 330 1,600 330 330 330 330 330 330 330	ממממממממממממממממממ

DILUTION FACTOR = 1.0 % DRY = 100

#### RADIAN CORPORATION METHOD 8270 - SELECTED SEMIVOLATILE ORGANICS

LAB NAME JOB NO. DESC

RECRA ENVIRONMENTAL INC.

91-3161

SEMIVOLATILE METHOD BLANK

SAMPLE NO. SBLK 86

EXTRACTION DATE 11/08/9 ANALYSIS DATE 11/12/91

COMPOUND (Units of Measure = UG/L )	RESULT	Q
3-Methylphenol Pyridine	350 350	U U

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3161

DESC

SEMIVOLATILE METHOD BLANK

SAMPLE NO. SBLK 86

EXTRACTION DATE 11/08/91 ANALYSIS DATE 11/12/91

COMPOUND	RESULT	Q
Internal Standards		<u> </u> 
(%Recovery) 1,4-Dichlorobenzene-D4 Naphthalene-D8 Acenaphthene-D10 Phenanthrene-D10 Chrysene-D12 Perylene-D12 Surrogates	126 118 123 130 134 127	
(%Recovery) 2-Fluorophenol Phenol-D5 2,4,6-Tribromophenol Nitrobenzene-D5 2-Fluorobiphenyl Terphenyl-D14	64 65 73 66 69 53	

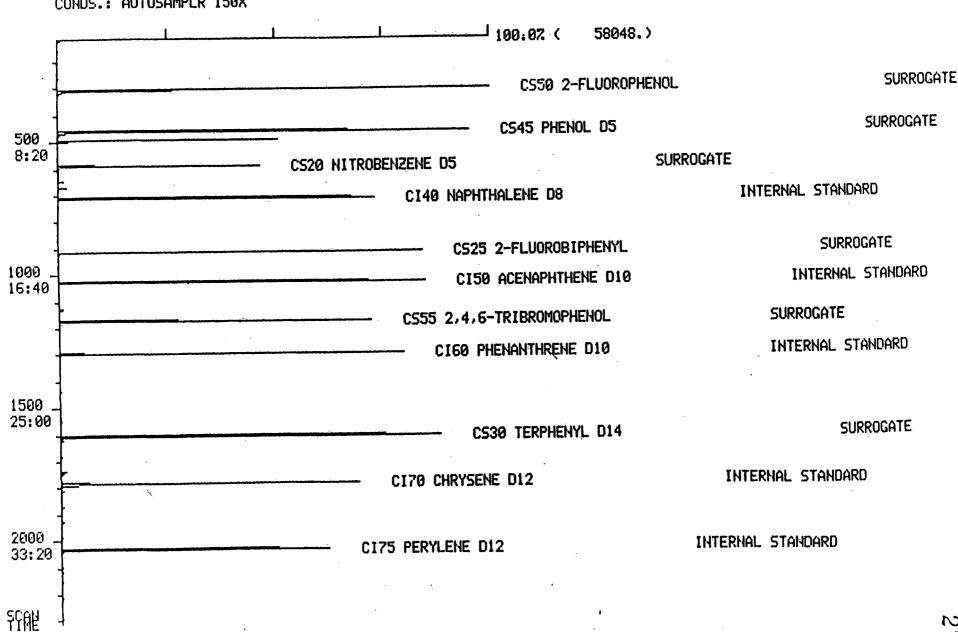
DATA FROM FILE: 9226X

SCANS 115 TO 2310 ACQUIRED: 11/12/91 19:27:00

CALI: 9226X #3

SAMPLE: SBLK86 JOB 3161 BP3875A

CONDS.: AUTOSAMPLR ISOX



# RADIAN CORPORATION SOIL MATRIX METHOD 8015 - NON-HALOGENATED VOLATILE ORGANICS

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3161

DESC

DRILL CUTTINGS

SAMPLE NO. CUTTINGS

SAMPLE DATE 10/25/9

		Ţ
COMPOUND (Units of Measure = UG/KG )	RESULT	Q
	490	U
Isobutanol		

LAB NAME RECRA ENVIRONMENTAL INC.

DESC

JOB NO. 91-3161 DESC DRILL CUTTINGS

SAMPLE NO. CUTTINGS

SAMPLE DATE 10/25/9

COMPOUND	RESULT	Q
Surrogates (%Recovery)	76	
2-Hexanone		<u> </u>

# RADIAN CORPORATION AQUEOUS MATRIX METHOD 8015 - NON-HALOGENATED VOLATILE ORGANICS

AB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3161

SAMPLE NO. TRIP BLANK

COMPOUND (Units of Measure = UG/L )	RESULT	Q
Isobutanol	1,000	U

LAB NAME RECRA ENVIRONMENTAL INC. JOB NO. 91-3161

SAMPLE NO. TRIP BLANK

COMPOUND	RESULT	Q
COMPOUND		
Surrogates		
(%Recovery) 2-Hexanone	70	

# RADIAN CORPORATION AQUEOUS MATRIX METHOD 8015 - NON-HALOGENATED VOLATILE ORGANICS

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3161

DESC

METHOD BLANK

SAMPLE NO. MB-1

COMPOUND (Units of Measure = UG/L )	RESULT	Q
	1,000	<b>ט</b>
Isobutanol		

LAB NAME RECRA ENVIRONMENTAL INC.

JOB NO.

DESC

91-3161 METERS METHOD BLANK

SAMPLE NO. MB-1

COMPOUND	RESULT	Q
Surrogates		
(%Recovery) 2-Hexanone	68	

## 34

#### RADIAN CORPORATION SOIL MATRIX METHOD 8015 - NON-HALOGENATED VOLATILE ORGANICS

LAB NAME RECRA ENVIRONMENTAL INC. JOB NO. 91-3161

DESC

91-3161 METHOD BLANK

SAMPLE NO. MB-2

COMPOUND (Units of Measure = UG/KG )	RESULT	Q
Isobutanol	400	U

LAB NAME RECRA ENVIRONMENTAL INC.

JOB NO. 91-3161

DESC METHOD BLANK

SAMPLE NO. MB-2

COMPOUND	RESULT	Q
COMPOUND		
Surrogates		
(%Recovery) 2-Hexanone	92	<u> </u>

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3161

SAMPLE DATE 10/28/91

	UNIT OF MEASURE	METHOD NUMBER	ANALYSIS DATE	RESULT	Q
Total Rec. Petro. Hydrocarbons	mg/l	418.1	11/04/91	0.5	U

LAB NAME RECRA ENVIRONMENTAL INC.

JOB NO.

91-3161

SAMPLE DATE 10/25/91

	UNIT OF MEASURE	METHOD NUMBER	ANALYSIS DATE	RESULT	Q
Total Rec. Petro. Hydrocarbons	mg/l	418.1	11/04/91	0.5	U

LAB NAME RECRA ENVIRONMENTAL INC. JOB NO. 91-3161

SAMPLE DATE 10/28/91

SAMPLE NO. PB-5

	UNIT OF MEASURE	METHOD NUMBER	ANALYSIS DATE	RESÜLT	Q
Total Rec. Petro. Hydrocarbons	mg/l	418.1	11/04/91	0.5	U

273

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3161

SAMPLE DATE 10/25/91

COMPOUND	UNIT OF MEASURE	METHOD NUMBER	ANALYSIS DATE	RESULT	Q
Total Rec. Petro. Hydrocark	oons mg/l	418.1	11/04/91	0.68	

LAB NAME RECRA ENVIRONMENTAL INC. JOB NO. 91-3161

SAMPLE DATE 10/25/91

	UNIT OF MEASURE	METHOD NUMBER	ANALYSIS DATE	RESULT	Q	
Total Rec. Petro. Hydrocarbons	mg/l	418.1	11/04/91	0.5	U	

LAB NAME RECRA ENVIRONMENTAL INC. JOB NO. 91-3161

SAMPLE DATE 10/24/91

	UNIT OF MEASURE	METHOD NUMBER	ANALYSIS DATE	RESULT	Q
Total Rec. Petro. Hydrocarbons	mg/l	418.1	11/04/91	0.5	U

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO. DESC

91-3161

EQUIPMENT BLANK

SAMPLE NO. E.B.

SAMPLE DATE 10/25/91

COMPOUND	UNIT OF MEASURE	METHOD NUMBER	ANALYSIS DATE	RESULT	Q.
Total Rec. Petro. Hydrocarbons	mg/l	418.1	11/04/91	0.5	U

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3161

DESC

METHOD BLANK

SAMPLE NO. MB-1

COMPOUND	UNIT OF MEASURE	METHOD NUMBER	ANALYSIS DATE	RESULT	Q
Total Rec. Petro. Hydrocarbons	mg/l	418.1	11/04/91	0.5	U

273

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO. 91-3161
DESC DRILL CUTTINGS
SAMPLE NO. CUTTINGS

COMPOUND	UNIT OF MEASURE		ANALYSIS DATE	RESULT	Q
Corrosivity Flash Point Total Available Cyanide Total Available Sulfide	STD uni °F MG/KG MG/KG	1110 1010 7.3.2 7.3.4.1	11/15/91 11/05/91 11/14/91 11/14/91	200 10	* U U

<sup>\*</sup> THE VALUE IS GREATER THAN 200 DEGREES FAHRENHEIT

SAMPLE DATE 10/25/91

LAB NAME RECRA ENVIRONMENTAL INC. JOB NO. 91-3161

SAMPLE NO. METHOD BLANK

COMPOUND	UNIT OF MEASURE		ANALYSIS DATE	RESULT	Q
Total Available Cyanide	MG/KG	7.3.2	11/14/91	10	ט
Total Available Sulfide	MG/KG	7.3.4.1	11/14/91	10	ט

QNY91-945

CHAIN OF CUSTODY RECORD

# RECRA ENVIRONMENTAL, INC.

OJECT I	80 -	01-5	50		SITE NAME. KODALUX	NO.	NO.				1/20 20 20	REMARKS
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NO	DATE	TIME	COMP	GRAB	STATION LOCATION		18	/ si/s	18 K	<del>/8</del> /	\ <u>0,6\</u>	H2504 pH < 2
ც-∠				×	Pilot Borehole 2	1	1					1 L Amber Glass 4°C cool
rip	·				TrpBlakfronkERA	6	1	J		1		40 ML VCA H2504 PH62
	W/25	1245		×	Pilot Burchole 1 (MW-7)	1	,	·				1 L Amber 6/25 4°C cool 1 L Amber 6/25 4°C cool 1 L Amber 6/25 4°C cool
PB-6	1.125	1440		<i>y</i>	Pilit Borchole 6	1	1			·		1 - Amber 6656 4'C con
Pe/	10/25	1515		×	Rilot Porchole 4	. 1	1					" "
B.4 Dy.	10/25	15.00		X	Pilot Rorchole 4 Ouplinke		1	<u> </u>				"
B-1	10/25	1430		х	Equipment Blond: 1	1	1,	-	_	-		" " "
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Chemical and Environmental Analysis Services

December 10, 1991

Ms. Lynn M. Moody Radian Corporation 155 Corporate Woods, Suite 100 Rochester, NY 14623

Re: Analytical Results

Dear Ms. Moody:

Please find enclosed revised results concerning the TRPH results of sample PB-4 DUP recently submitted by your firm. The Pertinent Information regarding these analyses is listed below:

Quote #: NY91-945R

Project Name: Kodalux-Fairlawn, NJ

Solid Drill Cuttings, Aqueous Matrix:

Samples Received: 10/29/91

Sample Dates: 10/24,25,28/91

If you have any questions concerning these data, please contact Ms. Donna Bateman, Project Manager, at (716) 691-2600 and refer to the I.D. number listed below. It has been our pleasure to provide Radian Corporation with Environmental Testing Services. We apologize for any inconvenience this may have caused you and we look forward to serving you in the future.

Sincerely,

RECRA ENVIRONMENTAL, INC.

Kenneth C. Malinowski, PhD

Vice President

- ---- NAME VANDE - 1000 0000 - 17161 601-2600 - FAX (716) 691-3011

PJV/KCM/dms Enclosure

> I.D. #91-3161 #91-3161A Revised #2A3811

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3161

SAMPLE DATE 10/25/91

SAMPLE NO. PB-4DUP

	UNIT OF METHOD MEASURE NUMBER		ANALYSIS DATE	RESULT	Q
Total Rec. Petro. Hydrocarbons	mg/l	418.1	11/04/91	0.5	U

## RECRA ENVIRONMENTAL, INC.

Chemical and Environmental Analysis Services

December 30, 1991

Ms. Lynn M. Moody Radian Corporation 155 Corporate Woods, Suite 100 Rochester, NY 14623

Re: Analytical Results

Dear Ms. Moody:

Please find enclosed results concerning the analyses of the sample recently submitted by your firm. The Pertinent Information regarding these analyses is listed below:

Quote #: NY91-945R P.O. #: 136191

Project Name: Kodalux-Fairlawn, NJ

Matrix: TCLP Extract

Sample Received: 10/29/91

Sample Date: 10/25/91

If you have any questions concerning these data, please contact Ms. Donna Bateman, Project Manager, at (716) 691-2600 and refer to the I.D. number listed below. It has been our pleasure to provide Radian Corporation with Environmental Testing Services. We look forward to serving you in the future.

Sincerely,

RECRA ENVIRONMENTAL, INC.

Kenneth C. Malinowski, PhD

Vice President

.... ... ... ... - ..... 2000 2000 . /7:E\ E01\_2E00 . EAY /7:E\ E01\_30:1

MAT/KCM/dms Enclosure

> I.D. #91-3651 #NY2A3811

Whiouki KRK

#### ANALYTICAL RESULTS

Prepared For

Radian Corporation 155 Corporate Woods, Suite 100 Rochester, New York 14623

Prepared By

Recra Environmental, Inc. 10 Hazelwood Drive, Suite 106 Amherst, New York 14228-2298

#### METHODOLOGIES

The specific methodologies employed in obtaining the enclosed analytical results are indicated on the specific data table. The method numbers presented refer to the following U.S. Environmental Protection Agency reference.

o U.S. Environmental Protection Agency "Test Methods for Evaluating Solid Waste - Physical/Chemical Methods." Office of Solid Waste and Emergency Response. November 1986, SW-846, Third Edition.

The Toxicity Characteristic Leaching Procedure was performed in accordance with modified method 1311, 40 CFR, Appendix II to Part 261, June 1990.

#### COMMENTS

Comments pertain to data on one or all pages of this report.

The enclosed results are reported utilizing data qualifiers (Q) as defined on the attached Inorganic Data Comment Page.

TCLP matrix spike quality control analysis was not performed at the request of Radian Corporation. Therefore, the measured values for sample DRILL CUTTINGS on the enclosed TCLP data have not been corrected for analytical bias as required by the referenced TCLP protocol.



# Laboratory Name <u>RECRA ENVIRONMENTAL</u>, INC.

## USEPA Defined Inorganic Data Qualifiers:

- B Indicates a value greater than or equal to the instrument detection limit but less than the contract required detection limit.
- U Indicates element was analyzed for but not detected. Report with the detection limit value (e.g., 100).
- E Indicates a value estimated or not reported due to the presence of interference.
- S Indicates value determined by Method of Standard Addition.
  - N Indicates spike sample recovery is not within control limits.
  - \* Indicates duplicate analysis is not within control limits.
  - + Indicates the correlation coefficient for method of standard addition is less than 0.995.
  - M Indicates duplicate injection results exceeded control limits.
  - W Post digestion spike for Furnace AA analysis is out of control limits (85-115%), while sample absorbance is less than 50% of spike absorbance.
  - G The TCLP Matrix Spike recovery was greater than the upper limit of the analytical method.
  - L The TCLP Matrix Spike recovery was lower than the lower limit of the analytical method.



#### RADIAN CORPORATION TOXICITY CHARACTERISTIC LEACHING PROCEDURE EXTRACT TOTAL METALS

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO. 91-3651

DESC

DRILL CUTTINGS

SAMPLE NO. CUTTINGS

COMPOUND ( MG/L )	METHOD NUMBER	ANALYSIS DATE	EPA MAX.	RESULT	MATRIX CORR. VALUE	Q	
Total Arsenic Total Barium Total Cadmium Total Chromium Total Lead Total Mercury Total Selenium Total Silver	7060 6010 7190 7420 7470 7740 7760	12/23/91 12/20/91 12/20/91 12/23/91 12/23/91 12/20/91 12/23/91 12/23/91	100.0 1.0 5.0 5.0 0.2	0.005 1.0 0.005 0.015 0.06 0.0004 0.005	0.0 0.0 0.0 0.0 0.0 0.0	ם ם ם ם	-

MEASURED VALUES HAVE NOT BEEN CORRECTED FOR ANALY-TICAL BIAS.

SAMPLE DATE 10/25/91

# RADIAN CORPORATION TOXICITY CHARACTERISTIC LEACHING PROCEDURE EXTRACT TOTAL METALS

LAB NAME

RECRA ENVIRONMENTAL INC. 91-3651

JOB NO.

SAMPLE NO. TCLP-BLANK

COMPOUND ( MG/L )	METHOD NUMBER	ANALYSIS DATE	EPA MAX.	RESULT	MATRIX CORR. VALUE	Q
Total Arsenic Total Barium Total Cadmium Total Chromium Total Lead Total Mercury Total Selenium Total Silver	7060 6010 6010 7190 7420 7470 7740 7760	12/23/91 12/20/91 12/20/91 12/23/91 12/23/91 12/23/91 12/23/91 12/23/91	100.0 1.0 5.0 5.0 0.2	0.005 0.03 0.005 0.017 0.06 0.0004 0.005	0.0 0.0 0.0 0.0 0.0 0.0	ט ט ט ט ט ט ט

# RADIAN CORPORATION TOXICITY CHARACTERISTIC LEACHING PROCEDURE EXTRACT TOTAL METALS

LAB NAME

RECRA ENVIRONMENTAL INC.

JOB NO.

91-3651

SAMPLE NO. METHOD BLANK

COMPOUND ( MG/L )	METHOD NUMBER	ANALYSIS DATE	EPA MAX.	RESULT	MATRIX CORR. VALUE	Q	
Total Arsenic Total Barium Total Cadmium Total Chromium Total Lead Total Mercury Total Selenium Total Silver	7060 6010 6010 7190 7420 7470 7740 7760	12/23/91 12/20/91 12/20/91 12/23/91 12/23/91 12/23/91 12/23/91 12/23/91	100.0 1.0 5.0 5.0 0.2 1.0	0.005 0.03 0.005 0.01 0.06 0.0002 0.005 0.01	0.0 0.0 0.0 0.0 0.0 0.0	ממטמטט	

QNY91-945

CHAIN OF CUSTODY RECORD

# RECRA ENVIRONMENTAL, INC.

							,			- 71	2.	Ψ_			
PROJECT NO: SITE NAME: KODALUX									REMARKS  A SOLUTION DH = 2						
SAMPLER	s isigi	NATUR	Mar	1200=	e		NO. OF CON- TAINERS							REMARKS	
STATION NO.	DATE	TIME	COMP	GRAB				\ <u>\\</u>	10	13/2×5/8		(25. C.			
₽₿-₴				x	Pilot Borehole	2 ک	,	1						1 L Amber Gloss 4°C cool	
Blank					TrpBlankfrom RELRA		6	<b>✓</b>	1		J			40 mL VOA	
	W/25	1245		Ж	Pilot Burchole 1	(MW·7)	1	1						1 L Amber 6 loss 4°C (00)	
PB-6	10/25	1440		×	Pilit Backole 6		ı	,	,					1 LAmber 6688 4: C cal	
PB. Y	10/25	1515		×	Pilot Borehole 4		1	,						11	
P8-4 Dup	10/25	1520		X	Pilot Porchoic 4 Ouplierte		1	1						"	
GB-1	10/25	1430		Ж	Equipment Blank 1		1	,						<b>A</b>	
B 5	19/28	1000		×	Pilot Borchde 5		,	,						11	
Dr.116H.	19/25	1600	×	•	Philluthings 10/25/91		3		1	<b>V</b>	V	/		ILWA Mouth 2 400. glass	
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#### RADIAN

#### AUSTIN

Corporate Headquarters 8501 Mo-Pac Bivd, PO. Box 201088 Austin, TX 78720-1088 (512)454-4797 FAX 512-454-7129

Summit Park Austin, TX (512)244-0100 FAX 512-244-0160

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(303)292-0800 FAX 303-292-5860

#### HOUSTON

(713) 785-9225 FAX 713-785-9390

#### LOS ANGELES

(213)640-0045 FAX 213-640-8940

Irvine, CA (714)261-8611 FAX 714-261-6505

#### MILWAUKEE

(414)643-2701 FAX 414-643-2699

#### RALEIGH/DURHAM

(919)541-9100 FAX 919-541-9013

Perimeter Park Morrisville, NC (919)481-0212 FAX 919-460-1631

#### ROCHESTER

(716)292-1870 FAX 716-292-1878

#### **SACRAMENTO**

(916) 362-5332 FAX 916-362-2318

#### **SAN FRANCISCO**

(415)686-2174 FAX 415-798-7905

#### SEATTLE

(206) 441-1106 FAX 206-441-4269

#### WASHINGTON, DC

(703)834-1500 FAX 703-834-1512

#### **HONG KONG**

5-231016 FAX (05) 868-1686

#### LONDON

Radian Limited (0483) 729307 FAX (0483) 725233

#### TAIWAN

(02) 7816161 FAX (02) 775-5906

A company of The Hartford Steam Boiler Inspection and Insurance Co.

### RADIAN

#### AUSTIN

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# Part 4

AIRBORNE EXPRESS

April 24, 1997

Ms. Mary Anne Rosa
Project Manager
Emergency and Remedial Response Division - Region II
U.S. Environmental Protection Agency
290 Broadway, 19th Floor
New York, New York 10007-1866

Re: Reply to Request for Information on Hazardous Substances at the Kodalux Processing Laboratory, Fair Lawn, New Jersey

Dear Ms. Rosa:

This is in response to your February 26, 1997 letter requesting information regarding the Kodalux Processing Laboratory (facility), located in Fair Lawn, New Jersey. Your request was mailed to the facility at Fair Lawn and thereafter forwarded to Eastman Kodak Company ("Kodak") corporate offices in Rochester, New York for my attention and handling. The status of the facility with respect to Kodak ownership is discussed in the accompanying response. The time to respond to this request was extended to April 26, 1997 by Ms. Amelia Wagner, Esq., of your staff.

As stated in Kodak's January 29, 1991 supplemental response to your office's previous request for information regarding handling of hazardous substances at the facility, four petroleum underground storage tanks and a dry well for the fire suppression system have been removed. These activities have been reported to New Jersey Department of Environmental Protection (NJDEP), case nos. 90 06 15 1528 and 90 05 22 1638.

Upon developing the attached response to your request for information, Kodak has concluded that the following reports inappropriately refer to the usage of trichloroethene (TCE) at the Kodalux Processing Laboratory:





DCN: 91-246-042-01

#### FINAL GROUNDWATER INVESTIGATION REPORT KODALUX PROCESSING LABORATORY FAIR LAWN, NEW JERSEY

### Prepared for:

Mr. Joseph Gabriel
Environmental Technical Services
Health and Environment Laboratories
Eastman Kodak Company
Rochester, New York

Prepared by:

Radian Corporation 155 Corporate Woods, Suite 100 Rochester, New York 14623 (716) 292-1870

### TABLE OF CONTENTS

		rage									
EXEC	CUTIVE SUMMARY	ES-1									
INTRODUCTION											
1.1 1.2	Project Description										
MON	ITORING WELL LOCATIONS	. 2-1									
MONITORING WELL INSTALLATION											
3.1 3.2	Methodology										
WELL DEVELOPMENT											
4.1 4.2 4.3	Methodology	. 4-1									
MON	ITORING WELL 2 (MW-2)	. 5-1									
SAMPLING PROCEDURES											
6.1 6.2 6.3 6.4 6.5	General	6-1 6-3 6-4									
ANALYTICAL RESULTS											
7.1 7.2 7.3 7.4	Field Data	7-1 7-4									
	INTR 1.1 1.2 MON 3.1 3.2 WELL 4.1 4.2 4.3 MON SAMI 6.1 6.2 6.3 6.4 6.5 ANAI 7.1 7.2	1.2 Historical Environmental Activities  MONITORING WELL LOCATIONS  MONITORING WELL INSTALLATION  3.1 Methodology 3.2 Results  WELL DEVELOPMENT  4.1 Methodology 4.2 Static Water Measurements 4.3 Groundwater Flow  MONITORING WELL 2 (MW-2)  SAMPLING PROCEDURES  6.1 General 6.2 Sampling Equipment 6.3 Sampling Procedures 6.4 Decontamination 6.5 Analytical Parameters  ANALYTICAL RESULTS  7.1 Field Data 7.2 Analytical Results 7.3 Blanks									

### **TABLE OF CONTENTS (Continued)**

	Page
APPENDIX A - NJDEP BEDROCK MONITORING WELL SPECIFICATIONS .	<b>A-1</b>
APPENDIX B - DRILLING LOGS	B-1
APPENDIX C - MONITORING WELL SCHEMATICS	C-1
APPENDIX D - MONITORING WELL CERTIFICATION FORMS	<b>D-1</b>
APPENDIX E - GROUNDWATER DEVELOPMENT RECORDS	E-1
APPENDIX F - ANALYTICAL RESULTS	F-1

## LIST OF FIGURES

Figure 1 Monitor Well Locations

Figure 2 Analytical Results for Monitoring Wells

## LIST OF TABLES

Table 1	Field Data for Kodalux Monitoring Wells
Table 2	Organic Compounds Detected in Kodalux Monitoring Wells - April 1991
Table 3	Inorganics Results for Kodalux Wells - April 1991
Table 4	Blank Sample Results

#### **EXECUTIVE SUMMARY**

Radian Corporation was contracted by Eastman Kodak Company to install and sample four monitoring wells (MW-2 through MW-5 as shown in Figure 1) at the Kodalux Processing Laboratory in Fair Lawn, New Jersey. In addition, an existing well (MW-1) was sampled. The wells were completed as bedrock monitoring wells in accordance with New Jersey Department of Environmental Protection (NJDEP) requirements. Installation activities began on March 25 and were completed on March 29, 1991. Sampling activities occurred on April 24, 1991.

The following summarizes the activities and findings of this work to date:

- HNu screening of soils indicated a soil vapor concentration of 0.3 parts per million (ppm) above background in MW-4 from 2.0 to 4.0 feet below grade. No visual signs of contamination were observed in any of the soils.
- In MW-2 a saturated parting was noted in the bedrock from 29.0 to 29.5 feet below grade. Perched water and hydrocarbons believed to be No. 6 fuel oil were encountered in this zone. In addition, HNu readings of 0.8 ppm were measured from cuttings in this zone. The thickness of the fuel oil floating in MW-2 was estimated between 0.5 and 0.75 inches. Below this zone, the underlying aquifer (confined) was encountered at MW-2 at 34.0 to 35.0 feet below grade.
- With the exception of the parting containing fuel oil in the bedrock in MW-2 and the two-foot zone in MW-4 noted above, HNu readings did not exceed background levels during installation of the four monitoring wells.
- Review of data from MW-1 (installed previously) indicates that the perched zone and confined aquifer encountered in MW-2 also exist at this location. Data indicate that the parting containing the oil and water dips northward toward MW-2 from MW-1, and that the hydraulic head in the confined aquifer below is slightly lower at MW-2 than at MW-1.
- The uppermost aquifer in the area of MW-3, and MW-4, and MW-5 appears to be under unconfined conditions.

- Approximately 0.25 inches of fuel oil was observed in the purge water from MW-2 at the time of sampling. In addition, fuel oil droplets were observed in the purge water from MW-1.
- Of the five wells MW-2 showed higher concentrations of petroleum hydrocarbons. Hydrocarbons were also detected in MW-1.
- More extractable organics were detected in MW-2 than the other four wells, although generally at levels just above the method detection limit.
- 1,1,1-Trichloroethane was present in every well with the highest concentration present in MW-2. 1,1,-Dichloroethane was detected in four wells (MW-1, MW-2, MW-3, and MW-4) with the highest concentration occurring in MW-3. MW-3 also contained the highest level of 1,1-dichloroethene, which was found in three wells (MW-2, MW-3, and MW-4). Vinyl chloride also was detected in MW-3. Other volatiles detected in MW-3, MW-1, and/or MW-5, include benzene, toluene, cis-1,2-dichloroethane, and chloroform.
- Formaldehyde was detected in MW-3, MW-4 and MW-5 at levels from 140  $\mu$ g/L to 2500  $\mu$ g/L. The concentrations presented here may be low due to the matrix interferences discussed in Section 7.4. In addition cyanide was detected in MW-3 and total chromium in MW-4 and MW-5.

#### 1.0 INTRODUCTION

## 1.1 Project Description

Radian Corporation has been contracted by Eastman Kodak Company to provide engineering and environmental services at the Kodalux Processing Laboratory (Kodalux) in Fair Lawn, New Jersey. This report discusses the environmental activities conducted at the facility in response to the installation of monitoring wells.

Boring, monitoring well installation, and well development activities for this project were conducted by Summit Drilling Corp., Inc., New Jersey-licensed well drillers. These activities were supervised by a qualified hydrogeologist from Radian Corporation.

## 1.2 <u>Historical Environmental Activities</u>

In May and June 1990, CA Rich Consultants, Inc., conducted an Underground Storage Tank (UST) closure program. A report detailing the closure program was submitted to the New Jersey Department of Environmental Protection (NJDEP) on August 1, 1990. USTs removed during closure activities included two 20,000-gallon No. 6 heating oil tanks, one 3,000-gallon unleaded gasoline tank, and one 2,000-gallon unleaded gasoline tank. Heating oil was detected in subsurface soil underlying both of the No. 6 heating oil tanks. The NJDEP Hotline was notified of the No. 6 heating oil discharge (May 22, 1990) and the site was assigned Case Number 90 05 22 1638.

In response to the above observations and a June 5, 1990, letter from Mr. Joseph Miller of NJDEP to Mr. Dick Spiegel of Eastman Kodak Company, CA Rich Consultants, Inc., installed one monitoring well (MW-1) adjacent to the former No. 6 heating oil tank locations, and excavated approximately 15 cubic yards of soil from below the former gasoline pump area. A Discharge Investigation and Corrective Action Report (DICAR) dated October 3, 1990, discusses the above activities, and addresses site characterization, soil remediation, and groundwater monitoring.

In September 1990, Radian Corporation conducted a subsurface vapor investigation in specific chemical use and processing areas at the facility. The objective of this investigation was to quantify subsurface vapor concentrations of chemical constituents, and provide information to be used for locating potential monitoring wells.

#### 2.0 MONITORING WELL LOCATIONS

Per the February 21, 1991, meeting between Eastman Kodak Company, NJDEP, and Radian Corporation, it was determined that four additional monitoring wells (MW-2 through MW-5) would be installed at Kodalux to investigate groundwater conditions at the facility. Well locations for MW-2 through MW-5 were agreed upon by the above parties, and correspond with locations MW-7, MW-4, MW-5, and MW-6, respectively, as described in the January 2, 1991, letter from Mr. A. Marc Commandatore of the NJDEP to Mr. Joseph G. Gabriel of Eastman Kodak Company. The well locations were slightly modified in the field, prior to drilling due to the presence of underground utilities and overhead interferences. Final monitoring well locations are described below, and are shown on a site map, presented in Figure 1.

- MW-2 Located along the eastern side of the building near the transformer pad (at soil gas probe location #1).
- MW-3 Located along the western side of the building (in the vicinity of soil gas probe location #4).
- MW-4 Off the western corner of the Phase II portion of the building in the vicinity of the basement sump.
- Approximately 30 feet north of the northern wall of the Phase II portion of the building, and 71 feet northeast of the western corner of the Phase II portion of the building (as measured along the northern wall).

Coordinates and elevations of the resultant wells were measured by Donald H. Stires Associates, New Jersey-licensed surveyors. Data were tied to New Jersey Geodetic Survey Control and are included on the site map (Figure 1).

#### 3.0 MONITORING WELL INSTALLATION

## 3.1 <u>Methodology</u>

Four monitoring wells were installed during this investigation. During the drilling of MW-3, groundwater was encountered before the drill bit had advanced 5 feet into competent bedrock. Therefore, the boring (SB-3) was abandoned with a cement-bentonite grout. The new boring location was then off-set approximately 25 feet to the south and completed as MW-3. All borings were completed as bedrock monitoring wells in accordance with NJDEP specifications (Appendix A), and were designed to monitor the uppermost aquifer.

Continuous 2-foot split-spoon samples were collected at MW-2 and MW-4. Samples were collected at 5-foot intervals at MW-3 and MW-5. Borings, 10 inches in diameter, were advanced to each split spoon sample interval using air rotary methods. Spoons were driven and samples collected until refusal at the bedrock surface. Cuttings recovered were screened with an HNu prior to opening the spoons. Upon opening the spoons the soils were classified and inspected for signs of visible contamination.

After bedrock was encountered, the 10-inch diameter borings were advanced 5 feet into competent bedrock using air rotary methods, after which 6-inch diameter steel casings were set. A cement-bentonite grout was emplaced into the annular space from the bottom of the casing to the ground surface. The grout was pumped under pressure through a tremie pipe to ensure positive placement of the grout. Grout was allowed to set overnight. After allowing the grout to set, 6-inch diameter borings were then advanced below the steel casings to a minimum of 10 feet below water table but not greater than 25 feet below the bottom of the casing. Rock cuttings were periodically screened with the HNu and visually inspected. Bedrock stratigraphy was classified based on visual inspection of the cuttings, drilling time, and drilling method responses to lithologic variability.

To protect the wells against vandalism or vehicular traffic, flush-mount manholes were slipped over the casing and anchored 1 foot below grade with grout. The steel casings were fitted with sealed locking caps and locks. A 2-foot by 2-foot by 4-inch thick concrete pad was poured into a flush mount form fitted around the manhole cover.

Efforts were made to reduce the possibility of introducing or carrying-over contamination from one borehole to another via the well bore. Equipment was steam-cleaned prior to and after drilling activities, and at each borehole. Cleaning was performed at a temporary decontamination pad. Decontamination materials, the pad, and personal protective equipment were containerized in a 55-gallon drum upon project completion and the drum was labeled to identify the date filled and the source (i.e., Decon pad and Tyvek\*). Soil and rock cuttings were placed in 55-gallon DOT drums upon generation, and the drums were labeled to identify the date filled and the source (i.e., MW-3 soil cuttings).

During all drilling activities, an HNu and Draeger tubes for formaldehyde were used to monitor air quality in the breathing zone of the worker closest to the borehole. Readings were collected at least every half hour.

#### 3.2 Results

HNu screening of the soils indicated no zones of detectable soil vapor concentrations, with the exception of MW-4, where 0.3 parts per million by volume (ppmv) above background was detected from 2.0 to 4.0 feet below grade. No visual signs of contamination were observed in any of the soils.

Unconsolidated overburden encountered consisted of predominately fine-grained to medium-grained sand, containing variable concentrations of silt, clay, gravel, and rock fragments. As a general rule the sands were medium-grained and silty; gravel was fine and consisted of sandstone, granite, and aphanitic rock. Rock fragments were predominantly sandstone from the underlying bedrock, with some granite and aphanitic

rock. A boulder was encountered in MW-4 near the overburden bedrock interface. The only absolute sign of fill material was the observation of cinders from 2.0 to 2.1 feet below grade in MW-4. The majority of the overburden was glacially derived with the upper materials possibly being fill. HNu screening values and soil classifications were recorded with depth, and are presented in the Drilling Logs, Appendix B.

Bedrock was encountered from 9.0 feet (MW-2) to 16.5 feet (SB-3) below grade. Bedrock elevations ranged from 85.07 ft. MSL (MW-2) to 79.03 ft. MSL (SB-3). All bedrock encountered in MW-2, and the upper 7 to 10 feet of bedrock encountered in MW-3, MW-4, and MW-5 consisted of hard, red, medium-grained sandstone. All casings were set within this sandstone.

Bedrock encountered beneath the cased sections consisted predominantly of hard to very hard, red, medium-grained sandstone, with softer, water-bearing sandstone and shale zones noted periodically in MW-3, MW-4, and MW-5 (Appendix B). Bedrock beneath the cased section of MW-2 consisted entirely of hard, red, medium-grained sandstone; however, a 0.5 foot parting in this sandstone was noted from 29.0 to 29.5 feet below grade. Elevated HNu readings (0.8 ppmv) were measured from cuttings recovered from this zone. HNu readings measured from all other rock cuttings were non-detected. In addition, water and a substance believed to be No. 6 fuel oil were observed in cuttings from this zone.

Total depths for completed monitoring wells varied from 35.0 feet (MW-2) to 41.07 feet (MW-3). The base elevation of borings ranged from 59.07 ft. MSL (MW-2) to 54.66 ft. MSL (MW-3). Bedrock lithologies and observations were recorded with depth and are presented in the Drilling Logs, Appendix B. Monitoring well schematics are presented in Appendix C.

Following completion, the wells were surveyed by Donald H. Stires Associates, a professional land surveyor licensed in the State of New Jersey. A copy of each "Monitoring Well Certification Form - B" is included in Appendix D.

A total of 19 drums of material were containerized during well installation, of which 15 drums contain soil and rock cuttings, 3 drums contain grout and water, and 1 drum contains the decon pad and Tyvek® coveralls.

## 4.0 WELL DEVELOPMENT

## 4.1 <u>Methodology</u>

Completed wells were allowed to set overnight, after which initial groundwater depth and depth to bottom of well were measured. Approximately 0.5 to 0.75 inches of No. 6 fuel oil were noted on the water surface of MW-2. Due to this fuel oil, MW-2 was not developed. The other three wells (MW-3 - MW-5) were developed to a turbidity-free discharge.

Water was pumped from the wells on March 25, 1991 with a submersible pump at a rate of approximately 7 gallons per minute. A maximum of approximately 20 gallons of water could be drawn from the wells prior to dewatering. The wells were allowed to partially recharge, and pumping was repeated. Well development records are presented in Appendix E. The final depths to groundwater and to bottom of well were measured after the wells were given sufficient time to fully recover. Final measurements were recorded on April 1, 1991.

Development water was containerized in labeled 55-gallon DOT drums. The labels identify date filled and the source (i.e., MW-3 development water). Three drums contain development water.

## 4.2 <u>Static Water Measurements</u>

Depths to static water from top of well casing in MW-3, MW-4, and MW-5 were 27.35 feet, 25.0 feet, and 23.6 feet, respectively; elevations were 67.95 ft. MSL, 68.69 ft. MSL, and 71.06 ft. MSL. The uppermost aquifer in this area appears to be under unconfined conditions. The static water elevations in all monitoring wells are shown in Figure 1.

Depth to the No. 6 fuel oil surface in MW-2 was 22.7 feet from the top of well casing; elevation was 70.8 ft. MSL. The thickness of the fuel oil floating on the water surface was estimated at approximately 0.5 to 0.75 inches. Depth to static water in MW-1, which was installed earlier, was 20.7 feet; elevation was 73.95 ft. MSL. Further discussion of MW-2 is presented in Section 5.0.

#### 4.3 Groundwater Flow

Based on this investigation, groundwater appears to exist under both confined and unconfined conditions under the facility. In the area of MW-1 and MW-2, the aquifer is under slightly artesian conditions due to a locally confining sandstone bed overlying the saturated zone. This is discussed in Section 5.0. In the vicinity of wells MW-3, MW-4, and MW-5, the aquifer exists under unconfined conditions.

For purposes of establishing flow directions, water level data from wells MW-1 and MW-2 cannot be used with data from the other wells (MW-3, MW-4, and MW-5) due to the apparent confined aquifer conditions. Static head in this vicinity is slightly less at MW-2 than at MW-1. Limited available information in the vicinity of monitoring wells MW-3, MW-4, and MW-5 indicates a west-southwesterly flow trend at an approximate hydraulic gradient of 0.03 ft/ft. Additional information is needed to further define hydrogeologic conditions and groundwater flow direction at the site.

#### 5.0 MONITORING WELL 2 (MW-2)

Review of MW-2 data, field observations, the Drilling Log, and the Monitoring Well Construction Schematic, indicates that a perched zone, containing No. 6 fuel oil and water under unconfined conditions, and a confined aquifer, are penetrated by the well; both are exposed to the open rock borehole. Unsaturated, medium-grained, hard, red sandstone is confining and separating the perched zone above from the confined aquifer below.

Overburden (0 to 9.0 feet) consisted of fine-grained silty sand with varying amounts of clay and gravel. The uppermost 4 feet of bedrock was weathered, medium-grained, red sandstone, underlain by 2 feet of medium-grained, red silty sand. Underlying this weathered zone was medium-grained, hard red sandstone, persisting to the bottom of the boring (Appendix B). The casing was set at 20.4 feet below grade, within this sandstone.

Perched water was first encountered below the bottom of the casing in a rock parting from 29.0 to 29.5 feet below grade. No. 6 fuel oil was also noted in this zone. After this perched zone, No. 6 fuel oil and water were no longer detected as drilling continued 4.5 feet through unsaturated, medium-grained, hard red sandstone. Groundwater was again noted from 34.0 to 35.0 feet, and the boring terminated at 35.0 feet. As noted in Section 4.2, depth to the No. 6 fuel oil surface in MW-2 was 22.7 feet from top of the well casing; elevation was 70.8 feet. The thickness of the fuel oil floating on the water surface was estimated at approximately 0.5 to 0.75 inches.

Review of MW-1 data indicate that the perched zone and confined aquifer extend into this area. Static water level in this well was measured at 20.7 feet from the top of casing; elevation was 73.95 feet. Fuel oil was not noted floating on the water.

The perched zone noted at these wells is slightly deeper in MW-2 than MW-1, suggesting that the bedrock parting containing the oil and water dips toward MW-2 from MW-1. Data available regarding the confined aquifer indicates that static head is slightly less at MW-2 than at MW-1.

#### **6.0 SAMPLING PROCEDURES**

## 6.1 General

This section provides a description of aspects relating to the sampling of the five groundwater monitoringing wells (MW-1 through MW-5). Sampling and analysis were performed per NJDEP letter from A. Marc Commandatore to Joe Gabriel of Kodak, dated January 2, 1991. Monitoring well locations are shown in Figure 1. Groundwater samples were analyzed for volatile organics, base/neutral and acid-extractable compounds, total cyanide, formaldehyde, total petroleum hydrocarbons, silver, chromium, and hexavalent chromium. The following subsections discuss sampling procedures and analytical methods. Per Mr. Commandatore's request, sampling procedures discussed in RCRA Ground-Water Monitoring Technical Enforcement Guidance Document, USEPA, September 1986, were followed.

## 6.2 Sampling Equipment

The sampling effort required the use of dedicated, non-dedicated, and miscellaneous equipment and reagents. Dedicated equipment was used at only one well. Non-dedicated equipment was used in all wells and required that a strict decontamination regimen be followed between wells. Miscellaneous equipment was used at each well but did not require decontamination as there was no direct contact with the samples. Each type of equipment necessary to complete the sampling is discussed below.

<u>Dedicated Equipment</u>: Each monitoring well had a dedicated Teflon® bailer and Teflon®-coated stainless steel line to avoid potential cross-contamination of wells. The bailer capacity was approximately 900 ml. In addition, tubing associated with the purge pump was dedicated to each well.

Non-Dedicated Equipment: Non-dedicated equipment included a purge pump and an electronic water level indicator (e-line). The e-line is capable of measuring water levels to 1/20th of a foot.

<u>Miscellaneous Equipment and Reagents</u>: Other equipment and reagents used during the sampling are listed below:

- pH/conductivity/temperature meter, capable of measuring pH from 0.01 to 14.00, conductivity to 20,000 uS, and temperature from -30.0 to 105.0°C;
- 200 ml wide mouth glass bottle;
- Rinse bottles for Alconox<sup>®</sup>, water, and acetone rinses;
- 10 % Nitric Acid;
- Acetone;
- Sample labels;
- Clear tape (to protect sample labels);
- Ice for sample preservation;
- Chemicals for sample preservation;
- Distilled water;
- Teflon® tape (for wrapping the tops of filled sample vials);
- Calibration buffers for pH meter;
- Calibration solution for conductivity meter;
- Safety equipment (detailed in health and safety plan); and
- Sample containers.

## 6.3 Sampling Procedures

The sampling procedures presented below represent the minimum requirements to ensure the collection of acceptable groundwater samples. The following sampling procedures are listed in the order in which they were performed in the field.

Static water level measurement: An e-line was used to determine the static water level in each of the wells before purging and sampling was performed. Markings on the tape allowed for measurement to 1/20th of a foot. The tape was decontaminated before advancing to the next well.

Well Purging: Standing water from the well casing was removed before samples were collected. Purging was performed as follows: Teflon® tubing was placed into each well with the open end just above the well bottom. For wells with relatively rapid recharge rates, a minimum of three well volumes was removed. Wells with low recovery rates were purged once to near dryness. Evacuation rates were kept below 5 gallons per minute and the well was never pumped completely to dryness. In addition, the pump intake was never placed more than six feet below the static water level in the well.

Due to the presence of fuel oil in MW-1 and MW-2, it was necessary to purge these wells by bailing rather than pumping. Dedicated stainless steel bailers were used for this task. Separate bailers were later used for sampling of these two wells.

A total of 4 drums of water were containerized during well purging.

Temperature, pH, and conductivity: Before and after collection of samples, the temperature, pH, and conductivity probes were placed in a wide-mouthed glass bottle into which a representative sample of well water has been poured. The probes were allowed to equilibrate with the water sample before final readings were taken from the meters. The glass bottle was rinsed with distilled water and a portion of the groundwater sample before use at each well.

<u>Sample Collection</u>: A total of five groundwater samples were collected. The samples were collected at MW-1, MW-2, MW-3, MW-4, and MW-5. The water level within each well had completely recovered (within 2 feet of the pre-purge static water level) before samples were collected. The bailer specific to the well being sampled was unwrapped, tied to a new draw line, and slowly lowered into the well. Turbulence of the water column was avoided to prevent volatilization of organic compounds.

Once the bailer was filled, it was slowly withdrawn from the well. The sample was poured from the top of the bailer into each sample container as appropriate, and into a separate container for field measurements, as previously described.

<u>Trip Blanks</u>: For each analytical parameter, one sample container was filled with Type II reagent grade water in the laboratory, shipped to the site with the empty containers, handled like a sample, and returned to the laboratory for analysis.

<u>Field Blanks</u>: For each analytical parameter, one sample container was filled with Type II reagent grade water by running it through a decontaminated bailer prior to use. The containers were then sealed, handled like a sample, and sent to the laboratory for analysis.

## 6.4 **Decontamination**

Dedicated equipment does not require the strict decontamination regimen that is applied to non-dedicated equipment. At the conclusion of sampling activities, dedicated bailers were washed with low-phosphate soap and water, and then distilled water, before being wrapped in foil and stored.

All non-dedicated equipment was decontaminated immediately after sampling, and before moving on to the next sampling station. This was to prevent cross-contamination of well water samples.

<u>Decontamination Procedures for Non-Dedicated Equipment</u>: The decontamination regimen was performed in the order presented here:

- Non-phosphate soap and water rinse;
- Distilled/deionzed water rinse;
- 10% Nitric acid rinse:
- Distilled/deionized water rinse;
- Acetone rinse (to remove polar organic compounds);
- Total air dry; and
- Final distilled water rinse.

## 6.5 Analytical Parameters

This section discusses the analytical parameters and methods performed on the monitoring samples at Kodalux in accordance with Marc Commandatore's letter to Joe Gabriel at Kodak dated January 2, 1991, and a telephone discussion between Radian and NJDEP on March 6, 1991.

Radian Corporation (New Jersey Lab ID #82625) in Austin, Texas, performed the following analyses:

- Base neutral and acid extractable compounds, utilizing EPA Method 625, plus the identification and quantification of the 15 highest non-targeted compounds and the total number of peaks;
- Total cyanide, utilizing EPA Method 9012;
- Formaldehyde, utilizing a colorimetric method which is an adaptation of NIOSH Method P&CAM 125 (formaldehyde is determined following reaction with chromotropic acid); and,
- Hydroquinone, utilizing EPA Method 625.

General Testing Laboratories (New Jersey Lab ID #73331) in Rochester, New York, performed the following analyses:

- Volatile organics, utilizing EPA Method 624, including o-, m-, and pxylenes, plus the identification and quantification of the 15 highest nontargeted compounds and the total number of peaks;
- Total petroleum hydrocarbons, utilizing EPA Method 418.1;
- Silver, utilizing atomic absorption, EPA Method 272.1;
- Chromium, utilizing atomic absorption, EPA Method 218.2; and
- Hexavalent chromium, utilizing atomic absorption, EPA Method 218.4 (24-hour holding time).

One field duplicate, one trip blank, and one field blank were collected for analysis of each of the parameters listed above.

#### 7.0 ANALYTICAL RESULTS

The five monitoring wells shown in Figure 1 were sampled April 24, 1991, at the Kodalux Photoprocessing Laboratory site in Fair Lawn, New Jersey. Samples were sent to two laboratories for analysis. Radian Corporation's Austin, Texas, laboratory received samples for analysis of base/neutral and acid-extractable organic compounds, total cyanide, and formaldehyde. Analysis of volatile organics, total petroleum hydrocarbons, silver, and total and hexavalent chromium was performed by General Testing's laboratory in Rochester, New York. Two laboratories were used in order to meet NJDEP certification requirements for each analysis.

The field data collected with the samples are presented below. Also discussed below are the analytical results for these analyses, followed by a brief discussion of the blank and quality control results associated with these samples. Copies of the analytical results are found in Appendix F.

## 7.1 Field Data

Table 1 presents the field measurement data collected concurrently with the field samples. The field data includes the depth to water, purge start and stop times, total volume purged from the well, well water pH, temperature and conductivity, and a general assessment of the well recovery rate.

## 7.2 <u>Analytical Results</u>

Table 2 and Table 3 present the results of the organic and inorganic analyses, respectively. Table 2 presents results for only those organic compounds which were detected in any of the monitoring wells. Table 3 presents results for all the inorganic analytes, whether they were detected in the monitoring wells or not. Both tables list the analytical methods used and note which laboratory performed the analysis. Results are also shown in Figure 2.

Any results detected above the method detection limit (MDL) were reported in the Radian laboratory report. Quantitation just above the MDL tends to be less certain than quantitation of higher analyte concentrations. In Tables 2 and 3, results reported by Radian less than five times above the detection limit have been replaced with the symbol "Z," to indicate low levels of the analyte were detected but with less quantitative certainty. The reported values for these low-level results are contained in the individual Radian laboratory report in Appendix F. Results reported by General Testing are those above the Practical Quantitation limit (PQL), a limit chosen above the MDL which takes into account the uncertainty in values between the MDL and PQC. General Testing does not report values between the MDL and PQL. General Testing's Laboratory report is also provided in Appendix F.

Base/Neutral and Acid Extractables: As seen in Table 2, only one analyte on the Method 625 target compound list - bis(2-ethylhexyl)phthalate - was detected at a level above five times the detection limit, at 19  $\mu$ g/L for MW-2. MW-2 also contained five other Method 625 analytes at levels at or just above the detection limit. These include anthracene, benzo(a)anthracene, naphthalene, phenanthrene, and pyrene. In addition, two other compounds - phenol and bis(2-ethylhexyl)phthalate - were detected in MW-3 and MW-4, respectively, at levels near the detection limit. The presence of bis(2ethylhexyl) phthalate appears to be due to the shipping and handling process, or to laboratory contamination (Section 7.3.).

Up to ten Tentatively Identified Compounds (TICs) were also reported for each sample. The TICs are not included in the calibration of the instrument; results should be considered estimates only. Similarly, since no external calibration is performed for TICs, specific detection limits are not available; the expected range of detection limits for most TICs is 10 to 100  $\mu$ g/L, depending on the class of the compounds. Several unknown extractable organics were reported for each well, as was an unknown alkoxy alcohol. The concentrations of the unknown extractables were summed and reported as a total number for each well. Oxabicyclo-heptane was detected in MW-3, MW-4, and MW-5, dichlorobenzenamine in MW-3 and MW-4. An unknown form of naphthalene

was detected at 48  $\mu$ g/L in MW-2. Dichloroidomethane was detected at 4  $\mu$ g/L in MW-5.

The gas chromatography/mass spectrometry results for each well sample were examined for the presence of hydroquinone. Hydroquinone was not one of the compounds contained in the Method 625 target analyte list, and therefore was not in the external calibration standards; instead, concentrations would have been estimated against an internal standard. However, no hydroquinone was detected in any well sample above the estimated detection limit of 10  $\mu$ g/L.

<u>Volatiles</u>: 1,1,1-Trichloroethane was present in every well ranging from 3.37  $\mu$ g/L to 7500  $\mu$ g/L, with the highest concentration present in MW-2. 1,1-Dichloroethane was detected in four wells, ranging from 6.16  $\mu$ g/L to 59.5  $\mu$ g/L, with the highest concentration occurring in MW-3. MW-3 also contained the highest level of 1,1-dichloroethene. This compound was found in MW-3, MW-2 and MW-4 at concentrations ranging from 2.30  $\mu$ g/L to 136  $\mu$ g/L. MW-3 contained 57.3  $\mu$ g/L vinyl chloride. Other compounds detected in MW-3, MW-1, and/or MW-5, include benzene, toluene, cis-1,2-dichloroethene, and chloroform. These compounds were detected at concentrations below 6  $\mu$ g/L. The presence of chloroform may be explained by laboratory contamination (Section 7.3)

Petroleum Hydrocarbons: Three wells (MW-3, MW-4, and MW-5) did not contain detectable levels of petroleum hydrocarbons, as analyzed by EPA Method 418.1. The amount reported for MW-1 was 470  $\mu$ g/L. MW-2 contained the highest quantity of petroleum hydrocarbons, with 61,200  $\mu$ g/L.

Formaldehyde: Formaldehyde was detected in MW-3 at 140  $\mu$ g/L, in MW-4 at 2500  $\mu$ g/L, and in MW-5 at 680  $\mu$ g/L.

<u>Inorganics</u>: As listed in Table 3, the inorganic analytes tested in the monitoring wells included total cyanide, silver, and chromium (total and hexavalent). None of these inorganics were detected in MW-1 or MW-2. MW-3 contained 0.15 mg/L total cyanide. The amount reported for MW-4 was near the detection limit (0.01 mg/L) for total cyanide. Total chromium results reported for MW-4 and MW-5 were 0.0326 mg/L, and 0.0177 mg/L respectively. Neither silver nor hexavalent chromium was detected in any of the wells.

#### 7.3 Blanks

One field blank and one trip blank were collected with the sample set. The field blank results were intended to indicate if contamination occurred during sampling, shipping, and/or handling. Trip blanks indicate whether contamination has occurred due to the shipping and handling phase itself. Method blanks also were analyzed concurrent with each method and indicate if contamination occurred during sample analysis or preparation.

As seen in Table 4, two TICs - an unknown base/neutral and acid-extractable compound (seen at scan 7.0 on the gas chromatograph/mass spectrometer), and an unknown alkoxy alcohol - were detected in all the blanks analyzed by Method 625. Unknown extractables were also found in MW-2 and MW-5 at scan 7.0, and the unknown alkoxy alcohol was detected in four of the five well samples. The fact that these compounds were seen in all the blanks indicates the source of these compounds was most likely related to the analytical method itself, rather than the well water.

In addition, bis(2-ethylhexyl)phthalate and chloroform appeared once in the trip blank and field blank, respectively. Bis(2-ethylhexyl)phthalate was detected in the trip blank at 7.3  $\mu$ g/L. This compound, a common laboratory contaminant, also was detected in two well samples. The quantity detected in MW-4 was comparable to the level found in the trip blank, and the amount found in MW-2 was less than three times that in the trip blank. The presence of this compound is likely due to the shipping and handling process, or to laboratory contamination, and not to well water contamination.

Chloroform was detected in the field blank at 4.24  $\mu$ g/L. Chloroform was also detected in one field sample, MW-1, at 2.22  $\mu$ g/L. Its presence in the field blank suggests laboratory contamination may be the cause of the one-time occurrence of chloroform in the well samples.

## 7.4 **Quality Control**

Surrogate recoveries for the volatile organic analyses all fell within acceptable limits. The majority of surrogate recoveries for the base/neutral and acid-extractables also were acceptable. Some of the extractable organics are footnoted in the laboratory report as having been out of control limits for the continuing calibration check; however, none of these compounds were detected in the well samples, so there is no impact on the data presented in Table 2. No problems were seen with the other quality control measurements for the organics analyses, including the Method 625 recovery check and the Method 624 matrix spike.

Additionally, no problems were seen with the quality control measurements associated with the analysis of silver, chromium, and cyanide. The matrix spike duplicates showed consistently low recovery for formaldehyde; the laboratory report noted the possibility of matrix interference or negative phenol interference from the sample composition. Since phenol was detected in only one well (MW-3), another source of matrix interference inherent in the sample is likely to be the cause of the low recoveries.

Figure 1. Monitor Well Locations

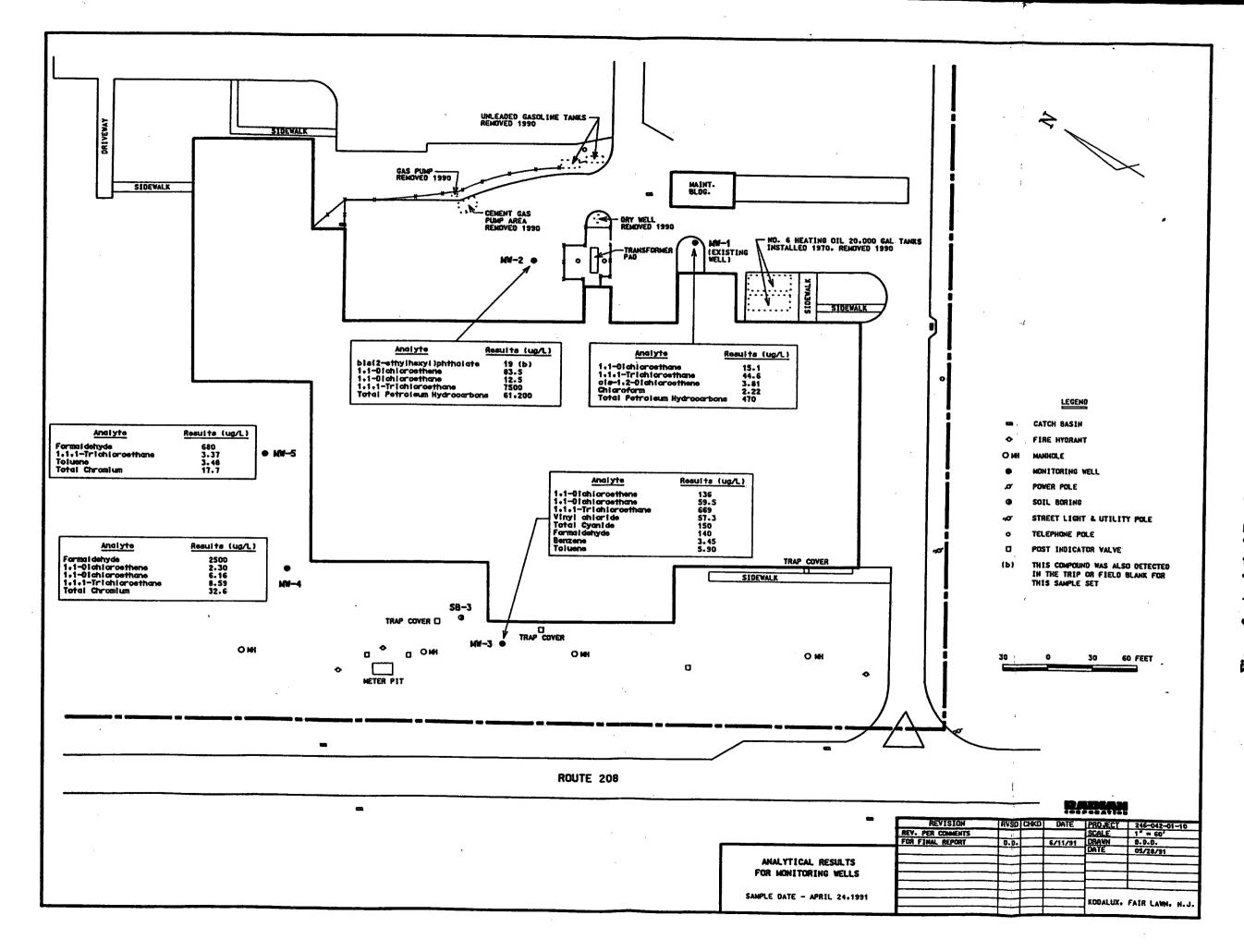


Figure 2. Analytical Results For Monitoring Wells

Table 1
Field Data for Kodalux Monitoring Wells

Well ID	Depth to Water	Purge Start Time	Purge Stop Time	Vol Purge	pH	Temp*C	Cond. (µS)	Recovery Rate
MW-1	20.10 ft	1435	1505	55 gal	6.50	13.2	31	fast
MW-2	23.5 ft	1355	1420	SS gal	6.30	13.5	60	fast
MW-3	28.95 ft	1045	1050	22 gal (dry)	7.73	25.0	112	slow
MW-4	25.30 ft	1125	1129	20 gal (dry)	8.46	13.5	367	slow
MW-S	23.00 ft	1325	1335	12 gal	7.65	13.5	179	slow

Field Notes:

MW-1 water had petroleum products on surface

MW-2 water had petroleum products on surface

MW-3 water appeared clear

MW-4 water appeared clear

MW-5 water appeared cloudy

(dry) purged to near dryness

Table 2

Organic Compounds Detected in Kodalux Monitoring Wells - April 1991

Analyte	Method	Labs	Detection Limit <sup>a</sup>	MW-I	MW-2	MW3	MW-4	MW-S
Base-Neutral and Acid Extractable Organics	EPA 625	R						
Anthracene			1.9	-	Z	-	-	
Benzo(a)anthracene			1.9	•	z	-	<b>19</b> -	
bls(2-ethylhexyl)phthalate			1.9	•	19 <sup>b</sup>		Z <sup>b</sup>	-
Naphthalene			1.9	•	Z	-	-	-
Phenanthrene			1.9	•	z		•	-
Phenol			9.6		-	z	÷	-
Pyrene			1.9	<u>.</u>	z		-	-
Tentatively Identified Compounds								
Unknowns (total)			c	51	80	22	97	154
Unknown alkoxy alcohol		•	С	67 <sup>b</sup>	100 <sup>b</sup>	•	74 <sup>b</sup>	91 <sup>b</sup>
Unknown naphthalenes			c	•	48	•	-	•
Oxabicyclo-heptane			С		-	4	10	5
Dichloro-benzenamine			С	•		14	14	•
Dichloroidomethane			С	-	-	-	-	4
Volatile Organics	EPA 624	GT						
1,1-Dichloroethene			2	•	83.5	136	2.30	· · · · · · · · · · · · · · · · · · ·
1,1-Dichloroethane			2	15.1	12.5	59.5	6.16	-
1,1,1-Trichloroethane			2	44.6	7500	669	8.59	3.37
Benzene			2	<u>-</u>	-	3.45	-	•
Toluene			2		-	5.90		3,48

Table 2

## (Continued)

	Method	Laba	Detection Limit <sup>d</sup>	Routts (Le/L)					
Analyte				MW-1	MW-2	MW-3	MW-4	MW-5	
cis-1,2-Dichloroethens			2	3.81	-	-	. •		
Chloroform			2	2.22	-	•	-	•	
Vinyl chloride			2	-	-	57,3	-		
Formaldehyde	OCC Method	R	9	-	-	140	2500	680	
Petroleum Hydrocarbons	EPA 418.1	στ	100	470	61,200	-	•	•	

#### R analysis performed by Radian

GT analysis performed by General Testing

- a Detection limits reported by Radian are Method Detection Limits. Those reported by General Testing are Practical Quantitation Limits.
- b This compound was also detected in the trip or field blank for this sample set.
- Detection limits for tentatively identified compounds are estimated to range from 10-100 µg/L.
- Z This result was less than 5 times the Radian detection limit for this compound; see the individual laboratory report.
- Not detected above the detection limit.

Table 3 Inorganics Results for Kodalux Wells - April 1991

				Results (mg/L)				
Amilyte	Method	Laha	Detection Limit <sup>a</sup>	MW-I	MW-2	MW-3	MW-4	MW-S
Total Cyanide	EPA 9012	R	0.010	•	. •	0.15	Z	-
Silver	EPA 272.1	στ	0.010	-			•	•
Total Chromium	EPA 218.2	GT	0.010	•	-	-	0.0326	0.0177
Hexavalent Chromium	EPA 218.4	GI.	0.010	•	•	•	•	•

Detection limits reported by Radian are Method Detection Limits. Those reported by General Testing are Practical Quantitation Limits.

R analysis performed by Radian

GT analysis performed by General Testing

Z This result was less than 5 times the Radian Method Detection Limit for this compound; see the individual laboratory report.

Not detected above the detection limit

Blank Sample Results
(Only analytes detected above detection limits are reported here)

Table 4

Field Blank	4.24 μg/L Chloroform (GT) 7 μg/L unknown extractable organic (R) 69 μg/L unknown alkoxy alcohol (R)
Trip Blank	7.3 μg/L Bis (2-ethylhexyl) phthalate@ (R) 24 μg/L unknown extractable organic (R) 79 μg/L unknown alkoxy alcohol (R)
Method Blanks	27 μg/L unknown extractable organic (R) 110 μg/L unknown alkoxy alcohol (R)

@ Result is less than 5 times the Radian Method Detection Limit

GT analysis performed by General Testing

R analysis performed by Radian

## APPENDIX A

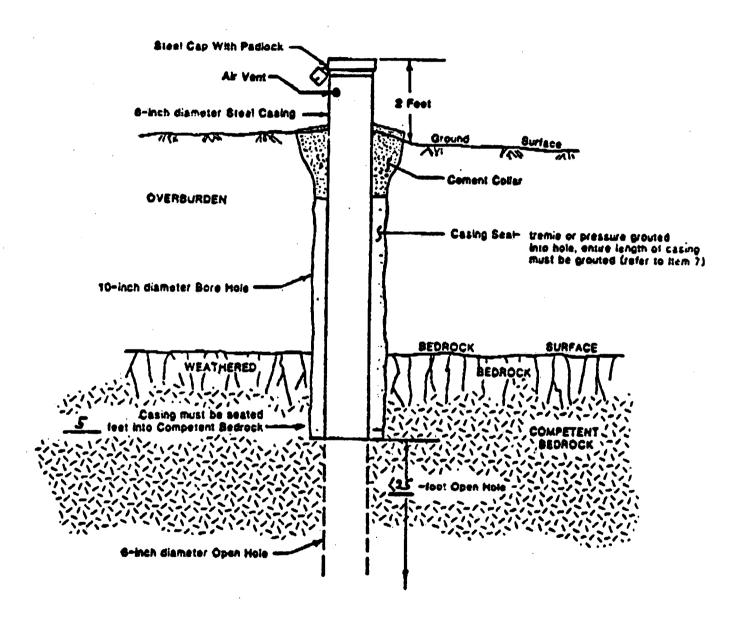
NJDEP BEDROCK MONITORING WELL SPECIFICATIONS

# MUNITUR WELL SPECIFICATIONS FOR BEDROCK FORMATIONS

SITE NAME: KODALUX PLOCESSING LAB

LOCATION: N.J. ROUTE 208, FAIRLAWN BERGEN COUNTY

DATE: 12/6/90



NOT TO SCALE

NJGS Revised 9-87

# BEDROCK MONITORING WELL REQUIREMENTS Revised 9/87

- 1. Notification to the NJDEP is required two weeks prior to drilling.
- 2. State well permits are required for each monitoring well constructed by the driller. The well permit tag must be permanently affixed to each monitoring well.
- 3. Copies of the site specific well specifications must be maintained at the drilling site by the driller.
- 4. The monitoring well must be installed by a New Jersey licensed well driller.
- 5. Monitoring well design must conform with NJAC 7:9-7, 8, and 9.
- 6. Drill an oversize borehole a minimum of 4 inches greater than the casing diameter through the overburden and bedrock so that the casing can be sealed into competent rock as indicated in the diagram.
- 7. Acceptable grouting materials are:

Neat Cement - 6 gallons of water per 94 pound bag of cement.

Granular Bentonite - I galion of water per 1.5 pounds of bentonite.

Cement-Bentonite - 8 gallons of water to 5 pounds of bentonite dry mixed per 94 pound bag of cement.

Cement-Bentonite - 10 gallons of water per 8 pounds of bentonite watermixed with a 94 pound bag of cement.

Non-expandable cement - 7.5 gallons of water per 1/2 teaspoon of aluminum hydroxide mixed with 4 pounds of bentonite and 94 pounds of cement.

Non-expandable sement - 7 gallons of water per 1/2 teaspoon of aluminum hydroxide mixed with 94 pounds of cement (Type 1 or Type 11).

- 8. Potable water must be used for mixing grouting materials and drilling fluids.
- 9. Only threaded or welded joints are acceptable as couplings.
- 10. The driller must maintain an accurate written log of all materials encountered, record construction details for each well, and record the depth of water bearing zones. This information must be submitted to the Bureau of Water Allocation as required by N.J.S.A. 58:4A.
- 11. Flush mount monitoring wells are acceptable provided they have manholes, looking sapt, and seals to prevent leakage of surface waterdaws the well.

  (Scale)

- 12. Top of each well casing (excluding cap) must be surveyed to the nearest 0.01 foot by a New Jersey licensed surveyor. The survey point must be marked on each well:
- 13. Wells must be developed to a turbidity-free discharge.
- 14. Modifications to designs are allowed only with NJDEP approval.

Additional Requirements (if checked):

Rock Core Samples ( )	
Split Spoon Samples (X ) EVERY TWO FEET AT WELLS MW-3, MW-5 AM MW-7	
Borehole Geophysical Logs ( )	
Dedicated Bailer (Sampler) in Well ( )	-
Other ( )	
	•
	•

Notice is Hereby Given of the Following:

Review by the Department of well locations and depths is limited solely to review for compliance with the law and Department rules.

The Department does not review well locations or depths to ascertain the presence of, nor the potential for, damage to any pipeline, cable, or other structures.

The permittee (applicant) is solely responsible for the safety and adequacy of the design and construction of monitoring well(s) required by the Department.

The permittee (applicant) is solely responsible for any harm or damage to person or property which results from the construction or maintenance of any well; this provision is not intended to relieve third parties of any liabilities or responsibilities which are legally theirs.

APPENDIX B

DRILLING LOGS

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			-	2" OD 24" split	t spoon so	ampler	9. St	RFACE ELEVATIO	)N N	W GEODETIC	SURVE	Y CONTROL		i
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85.07		_						HNu - NE	)	30-50/2" Air Rotary			·	上
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_					" OD drill bit OD 24" split spoor	sampler	9. SU	S. SURFACE ELEVATION NJ GEODETIC SURVEY CONTROL						┨
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10	6.0'				<u> </u>			27' below gr	ade (p	ossible water)	, 40' belov	w grade		]
1 <b>3. DEPTH</b>	<b>DRI</b> 25.0		TO ROCK				16. DE	PTH TO WATER 26.05' below development	top of	casing 22 ha	rer prille ours after	NG COMPLETE r completion	D n, before	
	DEF 1.07	<b>TH OF</b>	HOLE		· · · · · · · · · · · · · · · · · · ·		17. 01	HER WATER LET Static water	-	SURPLENTS (SP. 27.35' below		asing (4/1/	/91)	
	CHNI lone	CAL SA	MPLES		<b>DISTURBED</b> NÄ	UNDISTURBED NA	'	19. TOTAL NAME	ER OF None	CORE BOXES				
20. SAMPL	ES	FOR CH	EMCAL ANALY	SES	YOC	NETALS	НТО	er (specify)	ОТН	er (specify)	OTHER	(SPECFY)	21 TOTAL CORE RECOVERY	1
_ ^	ione				NA	NA .		NA		NA		NA	NA X	
2. DISPOS	SITIO	N OF H	IOLE		BACKFILLED	MONITORING WELL	ОТН	ER (SPECFY)	23. 5	CNATURE OF INC	PECTOR			
<b>.</b>														
ELEV.	DI	EPTH			DESCRIPTION OF MA	TERIALS		SOL SCREE		BLOW COUNTS		REMARKS		
95.73 Top		-	Top soil Fine grait	, red	silty sand, with cla	y and fine gravel		HNu - ND		4, 7, 7, 12		Medium d	ense	E
, op		Ξ			i brn. silty sand, witi , thinly laminated, ve			Air Rotary					E	
_	5		sandstone			.,		HNu + ND	)	2, 12, 25,	35	Dense		
		_	Medium	grain,	red brn. silty sand,	with fine to				Air Rotary	,		<del></del>	ŧ
	10		medium	grain	gravei			HNu - ND		No record			<del> </del>	E
		=	Medium	grain,	red silty sand, with	medium grain,	<del>.</del>	11114	· · · · · · · · · · · · · · · · · · ·					†
79.73	15		hard, red	sand	istone fragments			HNu = ND		Air Rotary 9, 17, 31, 5		Dense, ref	usal at 16.0'	Ι_
Bedrock	1	_	Medium	grain,	hard, red sandston	8								E
	20	_												
		=										22.0' casin	ıg set	E
	25	_	Medium	rain.	very hard, red san	dstone	· · · · · ·	-						E
-		=	Friable re		•	,		4				27' possibl	e water	F
1	30	_	Medium	grain,	hard, red sandston	e with soft		1	,					E
		_	1" sandst	one l	lenses at 32'	•								
_		=												F
	35		Ma #:					4						E
-		_	Meditim (	rain,	, soft, red sandstone	•								E
54.66	40		·			•						40' water	· · · · · · · · · · · · · · · · · · ·	厂
Bottom		- =	Bottom	of ho	ole at 41.07'									F
														<u></u>
														E
	<u> </u>				·			1						<u> </u>

					DRI	LLIN	IG LO	)G					HOLE	NO. MW-4	
1. COMPAN		WE	<u> </u>			<del></del>	2. DRILLING						SHEE	i 1	1
Koda	ux				<del></del>		Sum		ing Co., Inc.			<del></del>	OF	SHEETS	4
Fair l	_awn	, NJ						4. LOC	ATION Bridgewater, I	NJ					
S NAME O					.,			8. MANUFACTURER'S DESIGNATION OF DRILL							1
		tcoski	45 951 110	•	L''S 00			Mobile 80  8. HOLE LOCATION NJ GEODETIC SURVEY CONTROL							4
			OF DRILLING JPMENT		bile 80 " OD drill bit			o. 7101			LONG. 74° 07'		_		
					OD 24" split spoon	sampler	9. SURFACE ELEVATION NJ GEODETIC SURVEY CONTROL							1	
			j	6"	OD drill bit				94.16						
							· · · · · · · · · · · · · · · · · · ·	10. DA	TE STÄRTED 3/27/91		11	i date compu 3/28/91			1
OVEDS	I IDN	N THIC	MESS		<del></del>	·		15. DE	PTH GROUNDWA	TER EN	COUNTERED	3, 20, 31	<del></del>		+
•	3.0'										ssible water),	26.5' below	grade		
13. DEPTH	DRII 4.27		TO ROCK					16. DE	PTH TO WATER 24.75' below before develo	top of	APSED TIME AF	TER DRILLING 's. after com	completion	TED ,	
. TOTAL			HOLE			<del></del>		17. 01	HER WATER LEV	EL NEA	SUREMENTS (SP.		A/1/91)		
	7.2	CAL SA	MPLES		DISTURBED	1 (	UNDISTURBED	<del></del>	19. TOTAL NUMB	ER OF	· · · · · · · · · · · · · · · · · · ·	J. Juany (	., ,, ,, ,,,		1
	lone		<u> </u>		NA		NA			Vone					1
			EMICAL ANALY	SES	Voc	<u>K</u>	TALS	OTH	ER (SPECIFY)	ОТН	er (specify)	OTHER (SP	ECFY)	21. TOTAL CORE RECOVERY	
	ione	<u> </u>			NA	<u> </u>	NA .		NA	<u></u>	NA	NA.		NA X	
2. DISPO	SITIO	N OF H	OLE		BACKFILLED		RING WELL	ОТН	DR (SPECIFY)	23. SI	ONATURE OF INS	SPECTOR			
	<u>,</u>					<u></u>	/							····	
ELEV.	DE	PTH .			DESCRIPTION OF MAT	TERIALS		SOIL SCREENING BLOW RESULTS COUNTS				REMARKS			
94.16			Top soil Medium	grair	, red, silty sand				HNu - ND	1	2, 12, 14, 1	11 Me	dium	dense	E
Тор			Cinders Fine gra	(1") n, re	d, silty sand with clo	iy		-	HNu = 0.3	ppm	5, 5, 7, 8	Ме	dium	dense	E
_	5		Fine to	medi	um grain sand with n, thinly laminated, ve	silt:			HNu - ND		5, 7, 9, 19	Ме	dium	dense	E
		4	red san	iston	e fragments	y 3011,			HNu - ND		20, 22, 33,	35 Ve	ry den	se	E
	10		Modium		n red sand				HNu - ND		25, 27, 20, 22, 50/2"		nse	<b>.</b>	<u> </u>
			10.3' -12.	<u>0, ex</u>	tremely hard, aphani	tic bould	er	<del></del>	HNu - ND		Air Rotary		····		ļ
81.16 edrock			aphanitic	and	d sand with silt and sandstone rock fra	granite,		•	HNu - ND		9, 50, 50/0				F
	15		Medium	gr air	n, hard, red sandston	ė					Air Rotary	'			F
									:						E
	20				-				]			21	' casing	set	
<b>n</b>		7		· .		07.01	07.51					i		ole water	þ
	25			<del>-</del>	, soft, red sandstone , hard, red sandston		23,5		1				•		<u> </u>
<del></del>		3			, soft, red sandstone		27.0'		1			26	.5' wat	er	F
	30		Medium	grain	, very hard, red san	dstone			]						F
		=													E
_		٦													E
	35				•										E
56.89 Bottom		7		_			<del></del>								Ł
	40		Bottom	of h	ole at 37.27"										<u> </u>
		=													E
-		7													F
									1						F
															F
<del>,</del>									<u> </u>					···	

					DRI	LLING LC	)G					HOLE	no. MW-5	
. COMPAN Kodal		E				2. DRILLING Summ		ITRACTOR ing Co., Inc.				SHEET OF 1	1 SHEETS	
Fair L	.awn, I	NJ	<del></del>			······································	4. Loc	ATION Bridgewater, t	11					
i. NAME O	F DRIL	LER	•					UFACTURER'S DI Mobile 80	ESIGNAT	ON OF DRILL				
SIZES AND S			OF DRILLING PHENT		bile 80 " OD drill bit		8. HOLE LOCATION NJ GEODETIC SURVEY CONTROL LAT. 46°53'35.0"; LONG. 74°07"49.0"							
				2"	OD 24" split spoon	sampler	9. SURFACE ELEVATION NJ GEODETIC SURVEY CONTROL 95.03							
				6	OD drill bit		10. DATE STARTED 11. DATE COMPLETED 3/27/91 3/28/91							
OVERB		THICK	NESS	<u></u>	·			TH GROUNDWAT				<del>, , , , , , , , , , , , , , , , , , , </del>		1
3. DEPTH		ED INT	O ROCK		<u> </u>		16. DEI	25.5' below g TH TO WATER 23.55' below	AND EL	APSED THE AF	TER DRILLING	COMPLET	<b></b>	1
. TOTAL		1 OF I	HOLE				17. 011	ER WATER LEV	EL MEA	SUREMENTS (SP	ECFYI			1
3. GEOTE	6.97'	L SAM	PLES		DISTURBED	UNDISTURBED		23.6' below to	ER OF		D			1
<u> </u>	ES FO	R CHE	MICAL ANALY	<b>S</b> 25	NA VOC	NA METALS	OTHE	R (SPECFY)	lone OTH	R (SPECIFY)	OTHER (S	PECIFY)	21. TOTAL CORE	-
N	ione				NA	NA		NA		NA	NA	\	RECOVERY NA X	
2. DISPO	SITION	OF HO	LE		BACKFILLED	MONITORING WELL	OTH	er (specify)	23. S	GNATURE OF IN	SPECTOR			
ELEV.	DEP	тн			DESCRIPTION OF MA			SOL SCREE		BLOW		RE	MARKS	
95.03		긐	Fine to n	nediur	n grain, red sand w nitic and sandstone	ith silt and fine grav	/el,	RESULT:		No record				<del> </del>
Тор		=	and with	<b>υ</b> ρι.ω		aga				Air Rotary	,			F
1	5 -	=	Fine to n and with	nediur quart	m grain, red sand w z and sandstone fr	ith silt and fine gra- agments	/el,	HNu = N	D	20, 50/3' Air Rotary				E
	10 -	크	Fine to n	nediur	m grain, red sand w	ith silt and fine gra	/el,	HNu • N	<u> </u>	Air Rotary 12, 14, 16,		Medium d	lenga	E
		=	and with	quart	z, sändstone and ap	hanitic fragments		1846		Air Rotary		, ceiem		Ė
79.03 3edrock	15 -		Fine to and with	medi qua	um grain, red sand rtz, sandstone and (	with silt and fine gr ophanitic fragments	avel,	HNu = N	D	10, 22, 50	/0"			-
	20 -	二	Medium	grair	n, hard, red sandstor	ne								E
-		=	→ Soft eh	ale 2	3.0' - 23.5'			}			2	(1' casing	set	E
	25 -	긐	Medium	grair	n, hard, red sandstor 5.5' - 26.0'	16 .		1			2	5.5' poss	ible water	E
1	30 -		Medium	grair	n, very hard, red sai	ndstone								E
		#	Medium	grair	, soft, red sandston	e		}			3	2' water		E
	35 -	[	Medium	grair	n, hard, red sandstor	16								
58.06 Bottom		‡	Bottom	of	hole at 36.97'		<u></u>							ŧ
	40 -	日												F
_		]						:						
		]							,					E
	I			- :- :-	<del></del>	<del></del>	<del></del>	L					· · · · · · · · · · · · · · · · · · ·	Γ_

APPENDIX C

MONITORING WELL SCHEMATICS

## RADIAN

## MONITOR WELL CONSTRUCTION SCHEMATIC

PROJECT: Kodalux, Fair Lawn.	NJ WELL ID: MW-Z
DRILLING CO .: _ Summit Drilling	COORDINATES: LAT. 40°56'35.0"; LONG 74°07'44.5"
SUPERVISED BY: LMM. Radian	Corporation AQUIFER: Uppermost
DRILLING METHOD: _Air Rotary	DEPTH TO WATER FROM MEASURING
DATE COMPLETED: 3/28/91	POINT (MP): 22.7' (4/1/91)
FLUSH MOUNT MANHOLE COVER	MP: Top of casing
LOCKING CAP —	ELEVATION OF MP: 93.50
	HEIGHT OF MP RELATIVE TO GROUND LEVEL: -0.57'
PEPTH / /	HEIGHT OF THE RECEPTIVE TO ORGOND ELVELS
EET \ _ c	DNCRETE PAD
\ \ \ /	- GROUND SURFACE
	GROUT
	TYPE: Cement-bentonite (8 gal. water to 5 lb. bentonite
	to 94 lb. Portland cement)
-	AMOUNT: 5 - 94 lb. bags
	EMPLACEMENT METHOD: Tremie pipe
-   -	EMPLHUEMENT METHOD:
_   .   [ ^ .	RISER PIPE
0 -	V
	TYPE: Steel (20' pipe)
	DIAMETER: 6-Inch
5 – 🛕 🔭	BOREHOLE
	DIAMETER: 10" cased: 6" open rock DEPTH: 34.43' below MP
	TOTAL LENGTH OPEN ROCK: 14.43'
	TOTAL LENGTH OPEN ROCK:
<b>-</b>	• -
_ <b>_</b> _	
, - <sup>7</sup>	
_	
	ı
l <b>–</b>	
l –	
BO —	
l <b>–</b>	LEGEND
55 — ·····	
<del>-</del>	PARTING WITH *6 FUEL OIL
<del>-</del>	SANDSTONE
· <del>-</del>	<del></del>
· <del></del>	SHALE
40 <b>—</b>	
40 <del>-</del> -	▼ STATIC WATER LEVEL

## RADIAN

## MONITOR WELL CONSTRUCTION SCHEMATIC

DRILL SUPER DRILL	ING CO.: _ <u>su</u> RVISED BY: _ ING METHOD	ummit Dri LMM. Rad ): <u>Air R</u> e	dian Corporation	AQUIFER: Upper	. 40°56'33.5"1 LONG 74°07'48.0"
M	CLUSH MOUNT/ MANHOLE COVER —  IG CAP —			OF MP: 95.26	GROUND LEVEL: -0.47'
FEET -	\$ \$ 1 F	त्र । हिंद्	GROUND SURFACE		
	- A ·	Δ		94 lb. Portland cemer	. water to 5 ib. bentonite
- 5 - - -		Δ	AMOUNT: EMPLACEM	6 - 94 lb. bags ENT METHOD: Tre	mie pipe
- 10 - -		Δ	TYPE:S1 DIAMETER:	RISER teel (21.5' PIPE) 6-Inch	PIPE
- 15 - -		Δ Δ	DIAMETED.	BOREHO	— — —
_ _ _ 20 —		۵	DEPTH:	40.60' below MP  NGTH OPEN ROCK:	
- - - 25 -		P			
	==				
30 — — —					
35 — — — —					LEGEND PARTING WITH *6 FUEL OIL SANDSTONE
40 —				▽	SHALE STATIC WATER LEVEL

RADIAN M	ONITOR WELL CONS	STRUCTION SCHEMATIC
PROJECT: Kodalux, Fair DRILLING CO.: Summit br SUPERVISED BY: LMM, R DRILLING METHOD: Air DATE COMPLETED: 3/28	adian Corporation Rotary	COURDINATES: LAT. 40°56'34.5"; LONG 74°07'49.0"
FLUSH MOUNT MANHOLE COVER	MP: Top	of casing
LOCKING CAP		OF MP:93.69
DEPTH		MP RELATIVE TO GROUND LEVEL: -0.47'
FEET \	CONCRETE PAD	
	GROUND SURFACE	
	<u></u>	
- \alpha:		GROUT
	TYPE: Cem	ent-bentonite (8 gal. water to 5 lb. bentonite
5 - [4.]	<del></del>	94 lb. Portland cement) 6 — 94 lb. bags
	EMPLACEME	NT METHOD: Tremie pipe
		DICED DIDE
10 —	TVDE. St	RISER PIPE
	DIAMETER:	6-Inch
15 —		20251101 5
	D1	BOREHOLE
	DEPTH:	10" cased: 6" open rock 36.80' below MP
		GTH OPEN ROCK: 16.27'
20 —		
l –		
ı <del>-</del>		
25 — ▽		
. =		
-		
30 —		
T		
L_ <b>-</b>		LEGEND
ee totaliinii karaatii karaatii ka ka ka ka ka ka ka ka ka ka ka ka ka		<del></del>

PARTING WITH \*6 FUEL OIL SANDSTONE SHALE  $\nabla$ 

STATIC WATER LEVEL

## RADIAN

## MONITOR WELL CONSTRUCTION SCHEMATIC

SUPE DRILL	ING CU.: _3 RVISED BY: _ING METHO	LMM. Rad D: Air Ra	ian Corporation otary	AQUIFER: UI DEPTH TO WAT	LAT. 46"53 35.0"   LUNG 14"01"49.0"
1	FLUSH MOUNT MANHOLE COVER -	7	ELEVATION HEIGHT OF	of casing  OF MP:94.6  MP RELATIVE	TO GROUND LEVEL: -0.37'
0			CONCRETE PAD GROUND SURFACE		
r = - = =	24 · ·			GRO	OUT gai. water to 5 lb. bentonite
] -		D .		94 lb. Portland o	
5 — —	Δ'.'	Δ	AMOUNT: _	6 - 94 lb. bags	Tremie Dine
-		Δ'.	EMPLACEM	ENT METHOD:	Tromo pipo
_	Δ	Δ	,		
10 —		D .	TVDE 5	RIS reel (20.6' pipe)	ER PIPE
_	Δ	Δ	DIAMETER:	6-inch	
_ =					
15 —	Δ	Δ.		ROF	REHOLE
. –			DIAMETER:	10" cased: 6"	open rock
_	Δ	Δ.	DEPTH:	36.60' below MP	
20 —			TOTAL LE	IGTH OPEN ROC	K:
_		<u> </u>			
	, <u>===</u>	==			
_				·	
_	******	*******			
_					
' — 30 —			,		·
_					
_					
-					LEGEND
35 — —					PARTING WITH *6 FUEL OIL
_	***************************************			***********	SANDSTONE
-					SHALE
40 <del>-</del>				$\nabla$	STATIC WATER LEVEL
_					

## APPENDIX D

MONITORING WELL CERTIFICATION FORMS

## THIS FORM MUST BE COMPLETED BY THE PERMITTEE OR HIS/HER AGENT MONITORING WELL CERTIFICATION-FORM 3-LOCATION CERTIFICATION

Name of Permittee: Kodalux Name of Facility: Kodalux

Location: NJPDES Number:

Fairlawn, Bergen County

### LAND SURVEYOR'S CERTIFICATION

Well Permit Number (as assigned by NJDEP's Bureau of Water Allocation: This number must be permanently affixed to the well casing. Longitude (one-half of a second): 74 07 47.5 Latitude (one-half of a second): North 40 33.5 Elevation of Top of Inner Casing

(cap off) (one-hundredth of a foot): Source of elevation datum (benchmark, etc.)

Route 208 Control Mon. Sta. 109+0

95.59

If an alternate datum has been approved by the Department, identify here and give approximated elevation:

Approximate Elevation:

Owners Well Number (As shown on application or plan):

Boring "B"

### <u>AUTHENTICATION</u>

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment

LAND SURVEYOR'S SIGNATURE

Richard C. Mathews

PROFESSIONAL LAND SURVEYOR'S NAME (Please print or type)

SEAL

New Jersey License #29353 PROFESSIONAL LAND SURVEYOR'S LICENSE #

# THIS FORM MUST BE COMPLETED BY THE PERMITTEE OR HIS/HER AGENT MONITORING WELL CERTIFICATION-FORM B-LOCATION CERTIFICATION

Name of Permittee: Kodalux Name of Facility: Kodalux

Location:

Fairlawn, Bergen County

NJPDES Number:

### LAND SURVEYOR'S CERTIFICATION

Well Permit Number (as assigned by NJDEP's Bureau of Water Allocation:
This number must be permanently affixed to the well casing.

Longitude (one-half of a second):

Latitude (one-half of a second):

Elevation of Top of Inner Casing

(cap off) (one-hundredth of a foot): Source of elevation datum (benchmark, etc.)

RIM 95.06 PVC 94.65

If an alternate datum has been approved by the Department, identify here and give approximated elevation:

Route 208 Control Mon. Sta. 109+0

Approximate Elevation:

99.58

Owners Well Number (As shown on application or plan):

MW-1

#### **AUTHENTICATION**

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment.

PROFESSIONAL LAND SURVEYOR'S SIGNATURE

Richard C. Mathews

PROFESSIONAL LAND SURVEYOR'S NAME (Please print or type)

SEAL

New Jersey License #29353

# THIS FORM MUST BE COMPLETED BY THE PERMITTEE OR HIS/HER AGENT MONITORING WELL CERTIFICATION-FORM B-LOCATION CERTIFICATION

Name of Permittee:

Kodalux

Name of Facility:

Kodalux

Location:

Fairlawn, Bergen County

NJPDES Number:

## LAND SURVEYOR'S CERTIFICATION

Well Permit Number (as assigned by NJDEP's Bureau of Water Allocation:

This number must be permanently affixed to the well casing.

Longitude (one-half of a second):
Latitude (one-half of a second):
Elevation of Top of Inner Casing
(cap off) (one-hundredth of a foot):

West 74 07 44.5 North 40 56 35.0

(cap off) (one-hundredth of a foot):
Source of elevation datum (benchmark,
etc.)

RIM 94.07 PVC 93.50

If an alternate datum has been approved by the Department, identify here and give approximated elevation:

Route 208 Control Mon. Sta. 109+0

Approximate Elevation:

99.58

Owners Well Number (As shown on application or plan):

MW-2

#### <u>AUTHENTICATION</u>

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment.

PROFESSIONAL LAND SURVEYOR'S SIGNATURE

Richard C. Mathews

PROFESSIONAL LAND SURVEYOR'S NAME (Please print or type)

SEAL

New Jersey License #29353

### THIS FORM MUST BE COMPLETED BY THE PERMITTEE OR HIS/HER AGENT MONITORING WELL CERTIFICATION-FORM B-LOCATION CERTIFICATION

Name of Permittee: Kodalux Name of Facility: Kodalux

Location:

NJPDES Number:

Fairlawn, Bergen County

#### LAND SURVEYOR'S CERTIFICATION

Well Permit Number (as assigned by NJDEP's Bureau of Water Allocation: This number must be permanently affixed to the well casing.

Longitude (one-half of a second):
Latitude (one-half of a second):
Elevation of Top of Inner Casing
(cap off) (one-hundredth of a foot):
Source of elevation datum (benchmark,
etc.)

If an alternate datum has been approved by the Department, identify here and give approximated elevation:

_	• .				
Appro	ximat	ie El	ev.	ati	ion:

Owners Well Number (As shown on application or plan):

West_	74	07	48.0	
North_	40	56	34.5	

RIM 95.73 PVC 95.26

Route 208 Control Mon. Sta. 109+0

99.58

MW-3

#### <u>AUTHENTICATION</u>

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment.

PROFESSIONAL LAND SURVEYOR'S SIGNATURE

Richard C. Mathews

PROFESSIONAL LAND SURVEYOR'S NAME (Please print or type)

SEAL

New Jersey Läcense #29353 PROFESSIONAL LAND SURVEYOR'S LICENSE #

## THIS FORM MUST BE COMPLETED BY THE PERMITTEE OR HIS/HER AGENT MONITORING WELL CERTIFICATION-FORM B-LOCATION CERTIFICATION

Name of Permittee: Kodalux Name of Facility: Kodalux

Location:

Fairlawn, Bergen County

NJPDES Number:

### LAND SURVEYOR'S CERTIFICATION

Well Permit Number (as assigned by NJDEP's Bureau of Water Allocation: This number must be permanently affixed to the well casing.

Longitude (one-half of a second): Latitude (one-half of a second): Elevation of Top of Inner Casing (cap off) (one-hundredth of a foot):

40 North 56 34.5 RIM 94.16 PVC 93.69

07

49.0

74

West

Source of elevation datum (benchmark, etc.)

If an alternate datum has been approved by the Department, identify here and

Route 208 Control Mon. Sta. 109+0

Approximate Elevation:

99.58

Owners Well Number (As shown on application or plan):

give approximated elevation:

MW-4

#### <u>AUTHENTICATION</u>

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment.

PROFESSIONAL LAND SURVEYOR'S SIGNATURE

Richard C. Mathews

PROFESSIONAL LAND SURVEYOR'S NAME (Please print or type)

SEAL

New Jersey License #29353

# THIS FORM MUST BE COMPLETED BY THE PERMITTEE OR HIS/HER AGENT MONITORING WELL CERTIFICATION-FORM B-LOCATION CERTIFICATION

Name of Permittee: Kodalux Name of Facility: Kodalux

Location:

Fairlawn, Bergen County

NJPDES Number:

### LAND SURVEYOR'S CERTIFICATION

Well Permit Number (as assigned by NJDEP's Bureau of Water Allocation: This number must be permanently affixed to the well casing.

Longitude (one-half of a second):
Latitude (one-half of a second):
Elevation of Top of Inner Casing
(cap off) (one-hundredth of a foot):
Source of elevation datum (benchmark, etc.)

West 74 07 49.0 North 40 56 35.0

RIM 95.03 PVC 94.66

etc.)

If an alternate datum has been approved by the Department, identify here and give approximated elevation:

Route 208 Control Mon. Sta. 109+0

Approximate Elevation:

99.58

Owners Well Number (As shown on application or plan):

MW-5

#### <u>AUTHENTICATION</u>

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment.

. Krean ( Martine

PROFESSIONAL LAND SURVEYOR'S SIGNATURE

Richard C. Mathews

PROFESSIONAL LAND SURVEYOR'S NAME (Please print or type)

SEAL

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## THIS FORM MUST BE COMPLETED BY THE PERMITTEE OR HIS/HER AGENT MONITORING WELL CERTIFICATION-FORM B-LOCATION CERTIFICATION

Name of Permittee: Kodalux Name of Facility: Kodalux

Location: NJPDES Number:

Fairlawn, Bergen County

LAND SURVEYOR'S CERTIFICATION

Longitude (one-half of a second):
Latitude (one-half of a second):
Elevation of Top of Inner Casing
(cap off) (one-hundredth of a foot):
Source of elevation datum (benchmark, etc.)

West 74 07 45.0 North 40 56 37.5 89.78

If an alternate datum has been approved by the Department, identify here and give approximated elevation:

Route 208 Control Mon. Sta. 109+0

Approximate Elevation:

Owners Well Number (As shown on application or plan):

Boring "A"

#### <u>AUTHENTICATION</u>

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this document and all attachments and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information including the possibility of fine and imprisonment.

PROFESSIONAL LAND SURVEYOR'S SIGNATURE

Richard C. Mathews

PROFESSIONAL LAND SURVEYOR'S NAME (Please print or type)

SEAL

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### APPENDIX E

GROUNDWATER DEVELOPMENT RECORDS

## Groundwater Development Record

Well ID MW-3
Time/Date Start Development 1050/3-29-91
Installation ID 6"
Project Kodalux, Fairlawn, NJ
Initial/Final Groundwater Depth 26.05 / 27.35 (FT) Below Measuring Point
Initial/Final Depth to Bottom of Well 40.50 / 40.60 (FT) Below Measuring Point
Time/Date Finish Development 1136/3-29-91
Logger Code Lynn
Type, Size/Capacity of Pump or Bailer Submersible pump/7 gal/minute
Total Volume to Purge for \$\frac{3}{5}\$ (circle one) Well Volumes _58.39 Gallons
Actual Purged Volume 35 Gallons

Time	Cummulative Volume (Gallons)	Clarity/Color	рН	Specific Conductivity (#mhos)	Temp °C	Comments
1050 1055	20	silty/brn cleared @ 10 gal	-	-	-	pumped dry
1135 1136	35	clear/clear	-	-	-	pumped dry
						·

## Groundwater Development Record

Well ID _MW-4 Time/Date Start Development _0850/3-29-91 Installation ID _6" Project _Kodalux Fairlawn, NJ Initial/Final Groundwater Depth _24.751									
Time	Cummulative Volume (Gallons)	Clarity/Color	рН	Specific Conductivity (4mhos)	Temp °C	Comments			
0850 0855	20 gal	silty/brn	-	-	-	pumped dry			
1155	35 gal	clear/clear	-	-	-	pumped dry			
					·				
				<u>.</u>					
· · · · · · · · · · · · · · · · · · ·	<del>                                     </del>	· · · · · · · · · · · · · · · · · · ·							

# Groundwater Development Record

Installation Project Initial/Fin Initial/Fin Time/Date Logger C Type, Size Total Vol	e Start Der n ID <u>6"</u> Kodalux, Fra al Groundy al Depth to e Finish Dode <u>Lynn</u> e/Capacity ume to Pur	velopment <u>0950/3-</u> airlawn, NJ  water Depth <u>25.55</u> to Bottom of Well evelopment <u>1245/3</u> of Pump or Bailer rge for 3/5 (circle or ne <u>45</u> Gallons	/_23.6 36.60/ 3-29-91 Submersine) Well	36.60 (F	T) Below Meass  gal/minute	Point uring Point
Time	Cummulative Volume (Gallons)	Clarity/Color	рН	Specific Conductivity (µmhos)	Тетр °С	Comments
0950 0955	20 gal	silty/brn cleared @ 10 gal		-	-	pumped dry
1205	35 gal	silty/brn	-	•	•	pumped dry
1245	45 gal	clear/clear	-	•	•	pumped dry
<u> </u>		,	<u></u>			
		222				

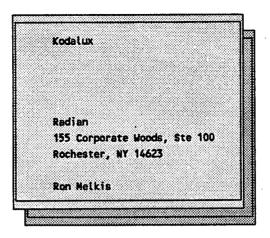
APPENDIX F

ANALYTICAL RESULTS



#### Radian Work Order 91-04-273

## Analytical Report 05/21/91



Customer Work Identification Fairlawn Purchase Order Number 246-042-01-40

#### Contents:

- 1 Analytical Data Summary
- 2 Sample History
- 3 Comments Summary
- 4 Notes and Definitions

Radian Analytical Services 8501 Mo-Pac Boulevard P. O. Box 201088 Austin, TX 78720-1088

512/454-4797

Client Services Coordinator: 'JSGIBSON

Certified by: hers afettoren



Radian Work Order: 91-04-273

Method:Semi-vol. by GC/MS	EPA625 (1)			
List:625				
Sample ID:	<del>///-</del> 1	NV-2	MV-3	MU-4
Fector:	0.96	0.94	0.97	0.94
Results in:	ug/L	ug/L	ug/L	ug/L
	oic	02C	03C	040
Matrix:	water	Water	Water	water

		.,	į						
	Result C	et. Limit	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit	
Acenaph thene	ND	1.9	ND	1.9	ND	1.9	ND	1.9	
Acenaphthylene	ND	1.9	ND	1.9	ND	1.9	ND	1.9	
Anthracene	ND	1.9	1.9 8	1.9	ND	1.9	ND	1.9	
Benzidine	ŅD	1.9	ND	1.9	ND	1.9	ND	1.9	
Benzo(a)anthracene	ND	1.9	3.0 a	1.9	ND	1.9	ND	1.9	
Benzo(a)pyrene	ND	1.9	ND	1.9	ND	1.9	ND	1.9	
Benzo(b)fluoranthene	ND	1.9	ND	1.9	ND	1.9	ND	1.9	
Benzo(g,h,i)perylene	ND	1.9	ND	1.9	ND	1.9	ND	1.9	
Benzo(k)fluoranthene	ND	1.9	ND	1.9	ND	1.9	ND	1.9	
4-Bromophenyl phenyl ether	ND	1.9	ND	1.9	ND	1.9	ND	1.9	
Butylbenzylphthalate	ND	1.9	ND	1.9	ND	1.9	ND	1,9	
4-Chloro-3-methylphenol	ND	9.6	ND	9.4	ND	9.7	ND	9.4	
bis(2-Chloroethoxy)methane	ND	1.9	ND	1.9	ND	1,9	ND	1,9	
bis(2-Chloroethyl)ether	ΝĐ	1.9	ND	1.9	ND	1,9	ND	1.9	
bis(2-Chloroisopropyl)ether	ND	1.9	ND	1.9	ND	1.9	ND	1.9	
2-Chloronaphthalene	ND	1.9	ND	1.9	ND	1.9	ND	1.9	
2-Chlorophenol	ND	1.9	ND	1.9	ND	1.9	ND	1.9	
4-Chlorophenyl phenyl ether	ND	3.9	ND	1.9	ND	1.9	ND	1.9	
Chrysene	ND	1.9	ND	1.9	ND	1.9	ND	1.9	
Di-n-octylphthalate	ND	1.9	ND	1.9	ND	1.9	ND	1.9	
Dibenz(a,h)anthracene	ND	1.9	ND	1.9	ND	1.9	ND	1.9	
Dibutylphthalate	ND	1.9	ND	1.9	ND	1.9	ND	1.9	
1,2-Dichlorobenzene	ND	1.9	ND	1.9	ND	1.9	ND	1.9	
1,3-Dichlorobenzene	ND	1.9	ND	1.9	ND	1.9	ND	1.9	
1,4-Dichlorobenzene	ND	1.9	ND	1.9	ND	1.9	ND	1.9	
3,3'-Dichlorobenzidine	ND	1.9	ND	1.9	ND	1.9	ND	1.9	
2,4-Dichlorophenol	ND	9.6	ND	9.4	ND	9.7	ND	9.4	
Diethylphthalate	ND	1.9	ŅD	1.9	ND	1.9	ND	1.9	
2,4-Dimethylphenol	ND	9.6	ND	9.4	ND	9.7	ND	9,4	
Dimethylphthalate	ND	1.9	ND	1.9	ND	1.9	ND	1.9	
		000000000000000000000000000000000000000	000000000000000000000000000000000000000						0.0000000000000000000000000000000000000

ND Not detected at specified detection limit

<sup>8</sup> Est. result less that 5 times detection limit

<sup>(1)</sup> For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

<sup>(2) 4-</sup>Methylphenol co-elutes with 3-methylphenol. The value reported is the combined total of the 2 compounds.



Radian Work Order: 91-04-273

Method:Semi-vol. by GC/MS EPA625 (1) List:625 Sample 10: MV-4 M/-3 MV-1 MU-2 0.94 0.97 Factor: 0.96 0.94 Results in: ug/L ug/L ug/L ug/L U3C 04C 01C 02C Matrix: water water water water

			<u> </u>					
	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit
2,4-Dinitrophenol	ND	9.6	ND	9.4	ND	9.7	ND	9,4
2,4-Dinitrotoluene	ND	1.9	ND	1.9	ND	1.9	ND	1.9
2,6-Dinitrotoluene	ND	3.9	ND	1.9	ND	1.9	ND	1.9
1,2-Diphenylhydrazine	ND	1.9	ND	1.9	ND	1.9	ND	1.9
bis(2-Ethylhexyl)phthalate	ND	1.9	19	1.9	ND	3.9	9.3 a	1.9
Fluoranthene	ND	1.9	ND	1.9	ND	1.9	ND	1.9
Fluorene	ND	1.9	ND	1.9	ND	1.9	ND	1.9
Hexach Lorobenzene	ND	1.9	ŅĎ	1.9	ND	1.9	ND	1.9
<b>Hexachlorobutadiene</b>	ND	1.9	ŇD	1.9	ND	3.9	ND	1.9
Hexachlorocyclopentadiene	ND	1.9	ND	1.9	ND	3.9	ND	1.9
Hexachloroethane	ND	1.9	ND	1.9	ND	1.9	ND	1.9
Indeno(1,2,3-cd)pyrene	ND	1.9	ND	1.9	ND	1.9	ND	1.9
Isophorone	ND	1.9	ND	1.9	ND	1.9	ND	1.9
N-Nitrosodimethylamine	ND	1.9	ND	1.9	ND	1.9	ND	1.9
N-Nitrosodiphenylamine	ND	1.9	ND	1.9	ND	1.9	ND	1.9
N-Nitrosodipropylamine	ND	1.9	ND	1.9	ND	1.9	ND	1.9
Naphthalene	ND	1.9	2.1 a	1.9	ND	1,9	ND	1.9
Nitrobenzene	ND.	1.9	ND	1.9	ND	1.9	ND	1.9
2-Nitrophenol	ND	9.6	ND	9.4	ND	9.7	ND	9.4
4-Nitrophenol	ND	9.6	ND	9.4	ND	9.7	ND	9.4
Pentach lorophenol	ND	9,6	ND	9.4	ND	9,7	ND	9.4
Phenanthrene	ND	1.9	4.7 a	1.9	ND	1.9	ND	1.9
Phenol	ND	9.6	ND	9.4	42 a	9.7	ND	9.4
Pyrene .	ND	1.9	8.5 a	1.9	ŅĎ	1.9	ND	1.9
1,2,4-Trichlorobenzene	ND	1.9	ND	1,9	ND	1.9	ND	1.9
2,4,6-Trichlorophenol	ND	9.6	ND	9.4	ND	9.7	ND	9.4
2-Methyl-4,6-dinitrophenol	ND	9.6	ND	9,4	ND	9.7	ND	9.4
			1					

ND Not detected at specified detection limit

@ Est. result less that 5 times detection limit

<sup>(1)</sup> For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

<sup>(2) 4-</sup>Methylphenol co-elutes with 3-methylphenol. The value reported is the combined total of the 2 compounds.



Radian Work Order: 91-04-273

Method: Semi-vol. by GC/MS EPA625 (1) List:625 Sample ID: HW-1 HU-2 MU-3 NU-4 Factor: 0.96 0.94 0.97 0.94 Results in: ug/L ug/L Ug/L ug/L 01C 02C 03C 04C Matrix: water water water water

	Result Det. Limit	Result Det. Limit	Result Det. Limit	Result Det. Limit
Surrogate Recovery(%)				
2-Fluorobiphenyl	23 Q	45	53	42 Q
Control Limits: 43 to 116			•	
2-Fluorophenol	8 Q	4 0	70	34
Control Limits: 21 to 100				
Nitrobenzene-d5	74	82	78	79
Control Limits: 35 to 114				
Phenol-d5	17 X	10 X	89 X	46 X
Control Limits: 10 to 94		Ī		1
Terphenyl-d14	83	81	83	82
Control Limits: 33 to 141				
2,4,6-Tribromophenol	32	8 Q	70	59
Control Limits: 10 to 123				

#### Q Outside control limits

X See definition in report marrative

- (1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.
- (2) 4-Methylphenol co-elutes with 3-methylphenol. The value reported is the combined total of the 2 compounds.



Radian Work Order: 91-04-273

Method:Semi-vol. by GC/MS EPA625 (1) List:625 **625 RECOVERY** Sample ID: MV-5 TRIP BLANK FIELD BLANK CHECK Factor: 0.99 0.99 0.94 0 %гесугу Results in: ug/L ug/L ug/L 05C 08C 09C 10A Matrix: water water water water Result Det. Limit Result Det. Limit Result Det. Limit Result Det. Limit **Acenaph thene** ND 2.0 2.0 ND 1.9 96 ND 2.0 ND 2.0 ND 1.9 93 Acenaphthylene 2.0 2.0 ND 1.9 102 Anthracene ND ND 2.0 1.9 NS ND 2.0 ND ND Benzidine 2.0 2.0 1.9 103 Benzo(a)anthracene ND ND ND 2.0 2.0 1,9 101 Benzo(a)pyrene ND ND ND 1.9 ND 2. G ND 2.0 ND 101 Benzo(b)fluoranthene ND 2.0 ND 2.0 ND 1.9 101 Benzo(g,h,i)perylene ND 2.0 2.0 1.9 99 Benzo(k)fluoranthene ND ND 2.0 2.0 1,9 101 4-Bromophenyl phenyl ether ND ND ND 2.0 2.0 1.9 ND ND Butylbenzylphthalate ND 111 9.9 9.9 ND ND ND 9.4 114 4-Chloro-3-methylphenol 1.9 2.0 bis(2-Chloroethoxy)methane ND 2.0 ND ND 104 ND 2.0 ND 2.0 ND 1.9 90 bis(2-Chloroethyl)ether 2.0 2.0 102 bis(2-Chloroisopropyl)ether ND ND ND 1.9 ND 2.0 ND 2.0 ND 1.9 NS 2-Chloronaphthalene 2-Chlorophenol ND 2.0 ND 2.0 ND 1.9 105 2.0 2.0 4-Chlorophenyl phenyl ether ND ND ND 1.9 107 2.0 2.6 1.9 Chrysene ND ND ND 104 2.0 ND 2.0 1.9 109 Di-n-octylphthalate ND ND Dibenz(a,h)anthracene ND 2.0 ND 2.0 ND 1.9 100 Dibutylphthalate ND 2.0 NĎ 2.0 ND 1 9 102 1,2-Dichlorobenzene ND 2.0 ND 2.0 ND 1.9 80 2.0 2.0 1.9 1,3-Dichlorobenzene ND ND ND 73 2.0 1.9 1,4-Dichlorobenzene ND ND 2.0 ND 74 3,3'-Dichlorobenzidine ND 2.0 ND 2.0 ND 1.9 110 Y 2,4-Dichlorophenol ND 9.9 ND 9.9 ND 9.4 103

ND Not detected at specified detection limit

NS Not spiked

ND

ND

ND

1.9

9.4 1.9 96

103

75

2.0

9.9

2.0

Diethylphthalate

2,4-Dimethylphenol

Dimethylphthalate

ND

ND

ND

2.0

9,9

2.0

ND

ND

ND

Y See definition in report narrative

<sup>(1)</sup> for a detailed description of flags and technical terms in this report refer to Appendix A in this report.

<sup>(2) 4-</sup>Methylphenol co-elutes with 3-methylphenol. The value reported is the combined total of the 2 compounds.



Radian Work Order: 91-04-273

Method:Semi-vol. by GC/MS EPA625 (1) List:625 625 RECOVERY FIELD BLANK Sample ID: MU-5 TRIP BLANK CHECK Factor: 0.99 0.94 0.99 Results in: %гесугу ug/L ug/L ug/L 05C 08C 09C 10A water water water water Matrix:

			Ī					
	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit	Result	Det. Limit
2,4-Dinitrophenol	ND	9.9	ND	9.9	ND	9.4	105	
2,4-Dinitrotoluene	ND	2.0	ND	2.0	ND	1.9	114	
2,6-Dinitrotoluene	ND	2.0	ND	2.0	ND	1.9	109	
1,2-Diphenylhydrazine	ND	2.0	ND	2.0	ND	1.9	NS	
bis(2-Ethylhexyl)phthalate	ND	2.0	7.3 a	2.0	ND	1,9	114	
Fluoranthene	ND	2.0	ND	2.0	ND	1.9	97	
Fluorene	ND	2.0	ND	2.0	ND	1.9	102	
Hexach Lorobenzene	ND	2.0	ND	2.0	ND	1.9	105	
Hexach Lorobutadiene	ND	2,0	ND	2.0	ND	1.9	85	
Hexachlorocyclopentadiene	ND	2.0	ND	2.0	ND	1.9	49	
Hexachloroethane	ND	2.0	ND	2.0	ND	1.9	76	
Indeno(1,2,3-cd)pyrene	ND	0.5	ND	2.0	ND	1.9	100	
Isophorone	ND	2.0	ND	510	ND	1.9	102	
N-Nitrosodimethylamine	ŅD	2.0	ND	2.0	ND	1.9	111	
N-Nitrosodiphenylamine	ND	2.0	ND	2.0	ND	1.9	104 Y	
N-Nitrosodipropylamine	ND	2.0	ND	2.0	ND	1.9	111	
Naphthalene	ND	2.0	ND	2.0	ND	1.9	86	
Nitrobenzene	ND	2.0	ND	2.0	ND	1.9	101	
2-Nitrophenol	ND	9.9	ND	9.9	ND	9,4	105	
4-Nitrophenol	ND	9.9	ND	9.9	ND	9.4	111	
Pentachlorophenol	ND	9.9	ND	9.9	ND	9.4	109	
Phenanthrene	ND	2.0	ND	2.0	ND	1,9	102	
Phenol	ND	9.9	ND	9.9	ND	9,4	102	
Pyrene	ND	2.0	MD	2.0	ŅD	1.9	106	
1,2,4-Trichlorobenzene	ND	2.0	ND	2.0	ND	1.9	88	
2,4,6-Trichlorophenol	ND	9.9	ND	9.9	ND	9.4	109	
2-Methyl-4,6-dinitrophenol	ND	9.0	ND	9.9	ND	9,4	NS	
							1	
	1.		1		1		1	

ND Not detected at specified detection limit NS Not spiked

A Est. result less that 5 times detection limit
Y See definition in report narrative

- (1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.
- (2) 4-Methylphenol co-elutes with 3-methylphenol. The value reported is the combined total of the 2 compounds.



Radian Work Order: 91-04-273

Method:Semi-vol. by GC/MS EPA625 (1) List:625 TRIP BLANK FIELD BLANK 625 RECOVERY Sample ID: MV-5 CHECK 0.94 Ð 0.99 0.99 Factor: ug/L Zrecvry Results in: ug/L ug/L 08C 09C 10A 05C water water Matrix: water water

_	Result Det. Limit	Result Det. Limit	Result Det. Limit	Result Det. Limit
Surrogate Recovery(%)				
2-Fluorobiphenyl	17 Q	51	46	49
Control Limits: 43 to 116				
2-Fluorophenol	19 Q	61	81	80
Control Limits: 21 to 100	•			
Nitrobenzene-d5	38	86	89	83
Control Limits: 35 to 114				
Phenol-d5	29	76	106 Q	99 Q
Control Limits: 10 to 94				
Terphenyl-d14	76	92	91	<del>9</del> 8
Control Limits: 33 to 141				
2,4,6-Tribromophenol	28 Y	74 Y	74 Y	86 Y
Control Limits: 10 to 123				

#### 9 Outside control limits

Y See definition in report marrative

- (1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.
- (2) 4-Methylphenol co-elutes with 3-methylphenol. The value reported is the combined total of the 2 compounds.



Radian Work Order: 91-04-273

Method:Semi-vol. by GC/MS EPA625 (1)

List:625

Sample ID:

625 RECOVERY

REAGENT BLANK

CHECK DUP

Fector: Results in:

1.0

Xrecvry 11A ug/L 13A

Matrix: water

water

	Result	Det. Limit	Result	Det. Limit	 
Acenaphthene	97		ŅD	5.0	
Acenaphthylene	95		ND	2.0	
Anthracene	99		ND	2.0	
Benzidine	NS		ND	2.0	
Benzo(a)anthracene	101		ND	2.0	
Benzo(a)pyrene	96		ND	2.0	
Benzo(b)fluoranthene	95		ND	2.0	
Benzo(g,h,i)perylene	97		ND	2.0	
Benzo(k)fluoranthene	.90		ND	2.0	
4-Bromophenyl phenyl ether	108		ND	2.0	
Butylbenzylphthalate	110		ND	2.0	
4-Chloro-3-methylphenol	107		ND	10	
bis(2-Chloroethoxy)methane	99		ND	2.0	
bis(2-Chloroethyl)ether	96		ND	2.0	
bis(2-Chloroisopropyl)ether	83		ND	2.0	
2-Chloronaphthalene	98		ND	2.0	
2-Chlorophenol	103		ND	2.0	
4-Chlorophenyl phenyl ether	107		ND	2.0	
Chrysene	101		ND	2.0	
Di-n-octylphthalate	107		ND	2.0	
Dibenz(a,h)anthracene	97		ND	2.0	
Dibutylphthalate	107		ND	2.0	
1,2-Dichlorobenzene	78		ND	2.0	
1,3-Dichlorobenzene	74		ND	2.0	
1,4-Dichlorobenzene	74		ND	2.0	
3,3'-Dichlorobenzidine	101 Y		ND	2.0	
2,4-Dichlorophenol	105		ND	10	
Diethylphthalate	93		ND	2.0	
2,4-Dimethylphenol	99		ND	10	
Dimethylphthalate	75		ND	2.0	

NS Not spiked

Y See definition in report marrative

ND Not detected at specified detection limit

(1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.

(2) 4-Methylphenol co-elutes with 3-methylphenol. The value reported is the combined total of the 2 compounds. RADIAN

Kodalux

Radian Work Order: 91-04-273

Method:Semi-vol. by GC/MS EPA625 (1)

List:625

Sample ID:

Factor:

Results in:

Matrix:

625 RECOVERY

CHECK DUP

Xrecvry

11A water REAGENT BLANK

1.0

ug/L 13A

water

		T	
	Result Det. Limit	Result Det. Limit	
2,4-Dinitrophenol	109	ND 1G	***************************************
2,4-Dinitrotoluene	114	ND 2.0	
2,6-Dinitrotoluene	108	ND 2.6	
1,2-Diphenylhydrazine	NS	ND 2.0 ND 2.0 ND 2.0	
bis(2-Ethylhexyl)phthalate	109	ND 2.0	
Fluoranthene	100	ND 2.0	
Fluorene	102	ND 2.0	
Hexachlorobenzene	111	ND 2.0	
Hexach Lorobutadiene	81	ND 2.0	
Hexachlorocyclopentadiene	38	ND 2.0	
Hexachloroethane	74	ND 2.0	
Indeno(1,2,3-cd)pyrene	97	ND 2.0	
Isophorone	96	ND 2.0	
N-Nitrosodimethylamine	99	ND 2.0	
N-Nitrosodiphenylamine	112 Y	ND 2.0	
N-Nitrosodipropylamine	101	ND 2.9	
Naphthal ene	86	ND 2.0	
Nitrobenzene	96	ND 2.0	
2-Nitrophenol	105	ND 10	
4-Nitrophenol	109	ND 50	
Pentach Loropheno L	110	ND \$0	
Phenanthrene	101	ND 2.0	
Phenol.	99	ND 10	
Pyriene	101	ND 2.0	
1,2,4-Trichlorobenzene	85	ND 2.0	
2,4,6-Trichlorophenol	108	ND 10	
2-Methyl-4,6-dinitrophenol	NS	ND 10	

NS Not spiked

ND Not detected at specified detection limit

Y See definition in report narrative

- (1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.
- (2) 4-Methylphenol co-elutes with 3-methylphenol. The value reported is the combined total of the 2 compounds.

Page: 10

Kodalux

Radian Work Order: 91-04-273

Method:Semi-vol. by GC/MS EPA625 (1)

List:625

Sample ID:

Matrix:

**625 RECOVERY** 

REAGENT BLANK

CHECK DUP

Factor: Results in: 0 Xrecvry

11A

1.0

ug/L 13A

water

Water

	Result Det. Limit	Result Det. Limit		
Surrogate Recovery(%)				
2-Fluorobiphenyl	61	49		
Control Limits: 43 to 116			,	
2-Fluorophenol	83	84		1
Control Limits: 21 to 100				
Nî trobenzene-d5	83	91		
Control Limits: 35 to 114				<u> </u>
Phenol -d5	100 Q	106 QX		i
Control Limits: 10 to 94				1
Terphenyl-d14	97	83		
Control Limits: 33 to 141				
2,4,6-Tribromophenol	88 Y	85		
Control Limits: 10 to 123				

Q Outside control limits

X See definition in report narrative

Y See definition in report narrative

- (1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.
- (2) 4-Methylphenol co-elutes with 3-methylphenol. The value reported is the combined total of the 2 compounds.

Radian Work Order: 91-04-273

Method:SEMIVOLATILE TIC LIST (1) MV-1 MW-2 MW-3 Sample ID: MW-4 0.96 Factor: 0.94 0.97 0.94 Results in: ug/L ug/L ug/L ug/L 01C 03C 04C 02C Matrix: water water water water

Result Det. Limit Result Det. Limit Result Det. Limit

- (1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.
- (2) Compounds are tentatively identified.
- (3) Quantitated values are approximate based upon an assumed response factor of one.
- (4) The detection limit for this analysis is ten ug/L.

Page: 12

Kodalux

Radian Work Order: 91-04-273

Method:SEMIVOLATILE TIC LIST (1) List: Sample ID: **MU-5** TRIP BLANK FIELD BLANK REAGENT BLANK 0.99 0.99 0.94 1.0 Factor: ug/L Results in: ug/L ug/L ug/L 05C 98C 09C 13A water water water water Matrix:

Result Det. Limit Result Det. Limit Result Det. Limit Result Det. Limit

- (1) For a detailed description of flags and technical terms in this report refer to Appendix A in this report.
- (2) Compounds are tentatively identified.
- (3) Quantitated values are approximate based upon an assumed response factor of one.
- (4) The detection limit for this analysis is ten ug/L.

Radian Work Order: 91-04-273

Tentatively Identified Compounds Method: SEMIVOLATILE TIC LIST (1)

Method: SEMIVOLATILE TIC	[15] (1)			
Sample ID	Analyte	Result	Units	Scan
MW-1				
	Unknown	8	úġ/L	4.63
	Unknown	6	ug/L	5.11
	Unknown	4	ug/Ļ	5.56
•	Unknown	12	ug/L	6.14
	Unknown alkoxy alcohol	67	ug/L	7.04
	Unknown	7	ug/L	9.28
	Unknown	8	ug/L	9.49
	Unknown	6	ug/L	9.56
MW-2				
	Unknown	20	ug/L	7.00
	Unknown alkoxy alcohol	100	ug/L	7.06
	Ünknoun	11	ug/L	9.28
	Unknown	6	ug/L	9.57
	C2-Napthalene	6	ug/L	13.5
	C2-Napthalene	9	ug/L	13.7
	C3-Napthalene	7	ug/L	47.8
	Unknown	8	ug/L	15.0
	C3-Napthalene	9	ug/L	15.1

C3-Napthalene

Note: TIC detection limits are estimated from internal standards; the estimated detection limit range for TICs is 10 to 100 µg/L, depending on the class of compounds.

7

ug/L

15.2



Radian Work Order: 91-04-273

Tentatively Identified Compounds Method: SEMIVOLATILE TIC LIST (1)

Method: SEMIVOLATILE TIC LIST List:	(1)			
Sample ID	Analyte	Result	Únits	Scan
·	C3-Napthalene	10	ug/L	15.4
	Unknown	8	ug/L	15.6
	Unknown	8	ug/L	17.4
	Unknown	9	ug/L	19.2
	Unknown C15-PNA	10	ug/L	19.7
MW-3				
	Oxabicyclo-heptane	4	ug/L	4.63
	Unknown .	6	ug/L	6.14
	Unknown	6	ug/L	7.11
	Dichloro-bezenamine	14	ug/Ĺ	12.3
	Unknown	10	ug/L	16.8
MW-4				
	Oxabicyclo-heptane	10	ug/L	4.64
	Unknown	4	ug/L	4.82
	Unknown	11	ug/L	5.56
	Unknown alkoxy alcohol	74	ug/L	7.05
	Unknown	22	ug/L	8.88
	Unknown	16	ug/L	9.28
	Unknown	10	ug/L	9.56

Unknown

TIC detection limits are estimated from internal standards; the estimated detection limit range for TICs is 10 to 100  $\mu g/L$ , depending on the class of compounds.

10

ug/L

12.3

Radian Work Order: 91-04-273

Tentatively Identified Compounds
Method: SEMIVOLATILE TIC LIST (1)

		•		
L	. 1	3	L	=

List:				
Sample ID	Analyte	Result	Units	Scan
	Dichloro-benzenamine	14	ug/L	12.3
	Unknown	14	ug/L	15.0
	Unknown	10	ug/L	19.8
MW-5				
	Dichloroidomethane	4	ug/L	4.08
	Oxabicyclo-heptane	5	ug/L	4.63
	Unknown	18	ug/L	4.81
	Unknown	11	ug/L	5.56
	Unknown	15	ug/L	7.00
	Unknown alköxy alcohol	91	ug/L	7.05
	Ünknown	63	ug/L	8.88
	Unknown	9	ug/L	9.28
	Unknown	6	ug/L	9.56
	Unknown	12	ug/L	10.5
	Unknown	6	ug/L	12.3
	Unknown	4	ug/L	14.1
	Unknown	6	ug/L	15.0
	Unknown phthalate	4	ug/L	25.4
TRIP BLANK				
	Unknown	24	ug/L	7.00

Note: TIC detection limits are estimated from internal standards; the estimated detection limit range for TICs is 10 to 100 µg/L, depending on the class of compounds.

Radian Work Order: 91-04-273

Tentatively Identified Compounds
Method: SEMIVOLATILE TIC LIST (1)

LIBL.				
Sample ID	Analyte	Result	Units	Scan
	Unknown alkoxy alcohol	79	ug/Ļ	7.06
FIELD BLANK				
	Unknown	7	ug/L	7.00
	Unknown alkoxy alcohol	69	ug/L	7.04
REAGENT BLANK				
	Unknown	27	ug/L	7.01
	Unknown alkoxy alcohol	110	ug/L	7.07

Note: TIC detection limits are estimated from internal standards; the estimated detection limit range for TICs is 10 to 100  $\mu$ g/L, depending on the class of compounds.

0.0090



Kodalux

Formal dehyde

Radian Work Order: 91-04-273

Hethod/Anelyte	MU-1			MV-2	Sample Id	dentificatio	ons MV-3			
Matrix	01 Water			02 water			03 water			
	Result	D	et. Limit	Result	De	et. Limit	Result	Det	. Limit	
Total cyanide by SW9012 Cyanide Formaldehyde, OCC Method	ND	mg/L	8,016	ND	mg/L	0.010	0.15	mg/L	0.010	

ND Not detected at specified detection limit

(1) For a detailed description of flags and technical terms in this report refer to the glossary.

mg/L

0.0090



Radian Work Order: 91-04-273

Method/Analyte	MJ-4 04		NV-5 05	Sample Ide	ntificatio	ons MJ-5 MS 06		
Matrix  Total cyanide by SW9012  Cyanide  Formaldehyde, OCC Method  Formaldehyde	Result  0.022 0 mg/L  2.5 mg/L	Det. Limit G.010 D.0090	Result ND 0.68	Det mg/L mg/L	. Limit 0.610 0.0090	Result 100	Det. %recvry %recvry	Limit

<sup>2</sup> Est. result less that 5 times detection limit

ND Not detected at specified detection limit

<sup>9</sup> Outside control limits

<sup>(1)</sup> For a detailed description of flags and technical terms in this report refer to the glossary.



Radian Work Order: 91-04-273

w					Sample Id	Mentificatio	ins		
Method/Analyte	MW-5 1	MSD		TRIP B	LANK		FIELD I	BLANK	
Matrix	07 Water			08 water			09 water		
	Result	Det	. Limit	Result	De	et. Limit	Result	Det	. Limit
Total cyanide by SW9012  Cyanide	105	%recvry		ND .	mg/L	0.010	ND	mg/L	6,016
Formaldehyde, OCC Method Formaldehyde	55 Q	%recvry		ND	mg/L	0,0090	ND	mg/L	0.0090

Q Outside control limits

ND Not detected at specified detection limit

(1) For a detailed description of flags and technical terms in this report refer to the glossary.



Radian Work Order: 91-04-273

Method/Analyte Matrix	METHOD 12 water						
Total cyanide by SW9012 Cyanide	Result ND	D mg/L	et. Limit G <sub>2</sub> 010				
Formaldehyde, OCC Method Formaldehyde	ND	mg/L	0.0090				

ND Not detected at specified detection limit

(1) For a detailed description of flags and technical terms in this report refer to the glossary.



Radian Work Order: 91-04-273

	Sample 10	dentifications :	and Dates			
Sample ID	NV-1	NV-2	NU-3	167-4	NU-5	MW-5 MS
Date Sampled	04/24/91	04/24/91	04/24/91	04/24/91	04/24/91	04/24/91
Date Received	I <b>04/25/91</b>	04/25/91	04/25/91	04/25/91	04/25/91	04/25/91
Matrix	water	water	water	water	water	water
	01	02	03	04	05	06
emi-vol. by GC/MS EP/	1625					
Prepared	04/26/91	04/26/91	04/26/91	04/26/91	04/26/91	
Analyzeo	05/09/91	05/09/91	05/09/91	05/09/91	05/10/91	
Analyst	RBW	RBW	RBW	RBW	RBW	
File ID	24104	24105	24106	24107	24111	
Btank II	24103	24103	24103	24103	24103	
Instrum	ent HP5988	HP5988	HP5988	HP5988	HP5988	
Report a	l i	received	received	received	received	
otal cyanide by SW90	1					
Prepare	1	05/06/91	05/06/91	05/06/91	05/06/91	05/06/91
Analyze		05/08/91	05/08/91	05/08/91	05/08/91	05/08/91
Analyst	MJS	MJS	MJS	MJS	MJS	MJS
File ID	AA110508-	-802011AA	AA110508-	AA110508-	AA110508-	AA110508-
Blank II						
Instrum		AAII	AAII	AATI	AAII	AAII
Report	1 1	received	received	received	received	received
ormaldehyde, OCC Meti	1 1					
Prepare	. 1	05/17/91	05/17/91	05/17/91	05/17/91	05/17/91
Analyze	1 T	05/17/91	05/17/91	05/17/91	05/17/91	05/17/91
Analyst	RDO	RDO	RDO	RDO	RDO	RDO
File ID						
Blank II			]			
Instrum		SPEC 21	SPEC 21	SPEC 21	SPEC 21	SPEC 21
Report	as received	received	received	received	received	received
EMIVOLATILE TIC LIST		0/ /0/ /0/	04.04.00	0, 10, 10,	04 404 404	
Prepare	1 1	04/26/91	04/26/91	04/26/91	04/26/91	
Analyze	1 1	05/09/91	05/09/91	05/09/91	05/10/91	
Analyst	1	RBW	RBW	RBW	RBW	
File ID	24104	24105	24106	24107	24111	
Blank II	1	24103	24103	24103	24103	
Instrum Report	1 ' 1	HP5988 received	HP5988 received	HP5988 received	HP5988 received	



Radian Work Order: 91-04-273

			entifications a				
Sam	ple ID	MU-5 MSD	TRIP BLANK	FIELD BLANK	625 RECOVERY CHECK	625 RECOVERY CHECK DUP	METHOD BLANK
Date	e Sampled	04/24/91	04/24/91	04/24/91			
	e Received	04/25/91	04/25/91	04/25/91	04/25/91	04/25/91	04/25/91
Mati	rix	water	water	water	water	water	water
		07	08	<b>89</b>	10	11	12
Semi-vol. by	GC/MS EPA625						
	Prepared	ł	04/26/91	04/26/91	04/26/91	04/26/91	
	Analyzed	İ	05/10/91	05/10/91	05/10/91	05/10/91	
	Analyst	ļ	RBW	RBW	RBW	RBW	
	File ID		24112	24113	24114	24115	
	Blank ID	`	24103	24103	24103	24103	
	Instrument		HP5988	HP5988	HP5988	HP5988	
	Report as	Į	received	received	received	received	
otal cyanid		1					
	Prepared	05/06/91	05/06/91	05/06/91	,		05/06/91
	Analyzed	05/08/91	05/08/91	05/08/91			05/08/91
	Analyst	MJS	MJS	MJS			MJS
	File ID	AA110508-	AA110508-	AAI 10508-			-805011AA
	Blank ID		[				
	Instrument	AAII	AAII	AAII			AAII
	Report as	received	received	received		1	received
Formaldehyde	, OCC Method			AB .48			
	Prepared	05/17/91	05/17/91	05/17/91			05/17/91
	Analyzed	05/17/91	05/17/91	05/17/91			05/17/91
	Analyst	RDO	RDO	RDO			RDO
	File ID	[	1				
	Blank ID						
	Instrument	SPEC 21	SPEC 21	SPEC 21			SPEC 21
SEMITUM ATTE	Report as	received	received	received			received
SEMIVOLATILE	1	į	0/ /2/ /01	0/ /2/ /01			
	Prepared		04/26/91	04/26/91 05/10/01			
	Analyzed	[	05/10/91	05/10/91			
	Analyst File ID	ļ	RBW 24112	RBW 2/117			
	Blank ID	į	24112 24103	24113			
	Instrument	ļ	24103 HP5988	24103 up5088			
	Report as	- 1	received	HP5988 received			



Radian Work Order: 91-04-273

Sample Identifications and Dates REAGENT BLANK Sample ID Date Sampled Date Received 04/25/91 Matrix water 13 Semi-vol. by GC/MS EPA625 Prepared 04/26/91 05/09/91 Analyzed Analyst RBW File ID 24103 Blank ID 24103 Instrument HP5988 Report as received SEMIVOLATILE TIC LIST Prepared 04/26/91 Analyzed 05/09/91 Analyst RBW File ID 24103 Blank ID 24103 Instrument HP5988 Report as received

## RADIAN

Appendix A

Comments, Notes and Definitions

Page: A-2

Kodalux

Radian Work Order: 91-04-273

General Comments

Low % spike recoveries for fractions 068 & 078 may indicate negative phenol interference or other matrix interference for formaldehyde test. Blank spike recovery was 91%. Initial & final QC recovery was 90 & 92% respectively.



GTC REPORT #\_R91/1695

#### REPORT INDEX

SECTION A: Analytical Data

SECTION B: Quality Control Data

SECTION C: Analytical Chronology

SECTION D: Field Documentation



#### GTC REPORT # R91/1695

SECTION		<u>A</u>
ANAT.VTTC	AT.	рата

Presented in this section is analytical data for the parameters requested. The following references concerning units and analytical methodology apply to the data herein.

Units: MG/L INORGANICS UG/L ORGANICS

#### Analytical Methodology Obtained From:

- ( X ) Federal Register, 40 CFR Part 136, Guidelines Establishing Test Procedures for the analyses of Pollutants under the Clean Water Act, 10/26/84.
- ( X ) SW-846, Test Methods for Evaluating Solid Waste, 3rd Edition, 9/86.
- ( ) Other:

# RADIAN

X = Continuing Calibration Check out of control limits (+/- 20%) 05/09/91:

N-Nitrosodimethylamine

Phenol-d5

2,21-Oxybis (1-Chloropropanol)

N-Nitrosos-di-n-propylamine

N-Nitrosodiphenylamine

Y = Continuing Calibration Check out of control limits (+/- 20%) 05/10/91:

2,4,6-Tribromophenol

N-Nitrosodiphenylamine

3,3'-Dimethylbenzidine

Notes and Definitions

Page: A-3

Kodalux

Radian Work Order: 91-04-273

a ALL METHODS EXCEPT CLP

The results which are less than five times the method specified detection limit.

**EXPLANATION** 

Uncertainty of the analysis will increase as the method detection limit is approached. These results should be considered approximate.

ND ALL METHODS EXCEPT CLP

This flag is used to denote analytes which are not detected at or above the specified detection limit.

**EXPLANATION** 

The value to the right of the < symbol is the method specified detection limit for the analyte.

NS ALL METHODS EXCEPT CLP

This analyte or surrogate was not spiked into the sample for this analysis.

Q ALL METHODS EXCEPT CLP

This quality control standard is outside method or laboratory specified control limits.

**EXPLANATION** 

This flag is applied to matrix spike, analytical QC spike, and surrogate recoveries; and to RPD(relative percent difference) values for duplicate analyses and matrix spike/matrix spike duplicate result.

X ALL METHODS EXCEPT INORGANIC CLP

This is a general purpose flag for those situations not covered by the standard flags. The specific definition of this flag is described in the Comments Summary and/or in the case narrative.

Y ALL METHODS EXCEPT INORGANIC CLP

This is a general purpose flag to be used after the X flag.

Notes and Definitions

Kodalux

Radian Work Order: 91-04-273

TERMS USED IN THIS REPORT:

Analyte - A chemical for which a sample is to be analyzed. The analysis will meet EPA method and QC specifications.

Compound - See Analyte.

Detection Limit - The method specified detection limit, which is the lower limit of quantitation specified by EPA for a method. Radian staff regularly assess their laboratories' method detection limits to verify that they meet or are lower than those specified by EPA. Detection limits which are higher than method limits are based on experimental values at the 99% confidence level. The detection limits for EPA CLP (Contract Laboratory Program) methods are CRQLs (contract required quantitation limits) for organics and CRDLs (contract required detection limits) for inorganics. Note, the detection limit may vary from that specified by EPA based on sample size, dilution or cleanup. (Refer to Factor, below)

EPA Method - The EPA specified method used to perform an analysis. EPA has specified standard methods for analysis of environmental samples. Radian will perform its analyses and accompanying QC tests in conformance with EPA methods unless otherwise specified.

Factor - Default method detection limits are based on analysis of clean water samples. A factor is required to calculate sample specific detection limits based on alternate matrices (soil or water), reporting units, use of cleanup procedures, or dilution of extracts/digestates. For example, extraction or digestion of 10 grams of soil in contrast to 1 liter of water will result in a factor of 100.

Matrix - The sample material. Generally, it will be soil, water, air, oil, or solid waste.

Radian Work Order - The unique Radian identification code assigned to the samples reported in the analytical summary.

Units - ug/L	micrograms per liter (parts per billion);liquids/water
ug/kg	micrograms per kilogram (parts per billion); soils/solids
ug/M3	micrograms per cubic meter; air samples
mg/L	milligrams per liter (parts per million); liquids/water
mg/kg	milligrams per kilogram (parts per million);soils/solids
*	percent; usually used for percent recovery of QC standards
u\$/cm	conductance unit; microSiemans/centimeter
mL/hr	milliliters per hour; rate of settlement of matter in water
טדא	turbidity unit; nephelometric turbidity unit
ໝ	color unit; equal to 1 mg/L of chloroplatinate salt

Report Narrative

Page: A-5

Kodalux

Radian Work Order: 91-04-273

For Semi-vol. by GC/MS EPA625 625 the following should be noted:

This analyte was found at less than the detection limit but the value is not reported in this report.

MW-2	Benzo(a)pyrene	with a value of 1.4	ug/l
HV-2	Benzo(g,h,i)perylene	with a value of 1.6	ug/l
MW-4	Phenol	with a value of 7.0	ug/l



# **Chain of Custody Record**

PROJECT				1					ANALY	SES					I
Modalux			SE.		/	1.	/		/	/					ļ
SITE					/1	<b>/</b> \	1	/	/ /	/	/	<i>[ ]</i>	•		
SITE Fairlawn			CONTAINERS	1	(V)		77	' /	' /		/ /	/ /			
COLLECTED BY (Signature)			8	I /	<b>\</b>	78/	<b>\</b> {/				<b>/</b>				
DWINTER			P	1/	/ج	3		/				/			
			ğ	I/ \	M	$\{\zeta_{n}\}$	Y.		/	/	/	/	CAN	M ID NO	. :
FIELD SAMPLE I.D.	SAMPLE MATRIX	DATE/TIME		1	14			/ /	/ /		/	REMARKS		b use o	
mw-1	Aq	4/24/41	3	X	X	X									
mw-2			3	X	X	X									
$m\omega-2$			3	X	X	X									
m61-4			3	X	X	$\boxtimes$									
mw-5			3	X	$\times$	X									
1995 TB			3	X	X	X						Trip Black			
Field Blank	V		3	X	X	X						Field Black			
REMARKS	<del></del>	<del></del>	<u> </u>					L				RELINQUISHED BY:	_	DATE	TIME
												01		4/24	
REGENER BY. POATE T	TIME RELINQUISHED BY	DATE TI	ME RE	CEIVE	D BY:				DAT	E	TIME	RELINQUISHED BY:		DATE	
	-	LA	B USE (	ONLY									J:		
RECEIVED FOR LABORATORY BY	DATE TIME AIR	BILL NO. OPENED						Ð	ATE	TIME	6	APPC SEAL # CONDI	NON		
REMARKS															



May 21, 1991

Mr. Ron Melkis
Radian Corporation
155 Corporate Woods, Suite 100
Rochester, New York 14623

Re: Kodalux Processing Services

Dear Mr. Melkis:

A total of five wells, one field blank and one trip blank were received at our laboratory on April 24 through April 25, 1991 from the above referenced site. All Chromium Hexavalent aliquots were received on the evening of April 24, 1991 to allow completion within holding time.

The analysis requested was obtained from a quotation dated March 25, 1991 by Mr. Barry Fry, quote # 91-004BF. Quality contol data was provided as requested by D. Winter on April 24, 1991. Library search data can be provided if needed at your request.

Analytical data can be found in Section A, additional sections include: quality contol data, an analytical chronology, and field documentation. These can be found in Section B-D respectively.

Please review this data package, if any questions arise contact me at (716)-454-3760. Thank you for allowing us to provide these services.

Sincerely, GENERAL TESTING CORPORATION

Sue Lochner

Client Representative Manager

sal.
Enc.
A:Radian

710 Exchange Street • Rochester, New York 14608 • (716) 454-3760 • Fax (716) 454-1245

85 Trinity Place • Hackensack, NJ 07601 • (201) 488-5242 • Fax (201) 488-6386

435 Lawrence Bell Drive • Amherst, NY 14221 • (716) 634-0454 • Fax (716) 634-9019



#### DATA AND QUALITY CONTROL QUALIFIERS

- U Indicates compound was analyzed but was not observed at a quantifiable concentration.
- J Indicates an estimated value
  - J Qualifiers (used in conjunction with J and/or QC page or chronology)
  - S Surrogate recoveries outside of control limits
- M Matrix spike and/or matrix spike duplicate outside control limits
- St Surrogate recoveries outside of control limits, analysis repeated, same results obtained, matrix interference suspected
- Mt same as M ORGANIC PARAMETERS: Matrix interference suspected, Organic reference standard was acceptable.
- r Laboratory replicates outside of laboratory advisory limits
- INORGANIC PARAMETERS: Matrix interference suspected. Repeat analysis still unacceptable

- t Matrix interference suspected
- h Holding time exceeded for analysis
- Mr INORGANICS PARAMETERS: Matrix interference suspected, repeat analysis not conducted due to holding time limitations
- p EPA-approved protocol has been amended upon client request
- B Indicates that the analyte was found in the associated laboratory or field blank
  - B Qualifiers (used in conjunction with B)
  - l Contamination in lab or method blank
- e Contamination in equipment blank

t - Contamination in trip blank

- f Contamination in field filtration blank
- x Contamination in two or more types of blanks (i.e. Lab or Method, Trip, Equipment, or Field Filtration Blank)
- d Results multiplied by dilution factor

#### MISCELLANEOUS QC AND DATA QUALIFIERS

ND - Not Detectable

NS - No Sample

NA - Not Analyzed

- \*+ No limits currently established
- \*\* See Attached Data
- I Insufficient sample to re-analyze

- D Surrogate standard diluted out
- R Sample re-analyzed outside UP Unable to perform analysis due of holding time
  - to sample matrix

- V Spiked recovery cannot be determined, sample value >4 times spike concentration
- ++ Outside Laboratory acceptance limits (Blank Spikes, Ref. Spikes)
- RC Results confirmed via repeat anelysis

NC - Not Calculable

- LE Lab Error: No data available
- t Surrogate Matrix Interference



### LABORATORY REPORT

Job No: R91/01695

Date: MAY 10 1991

Client:

Mr. Ron Melkis Radian Corp.

155 Corporate Woods, Suite 100

Rochester, NY 14623

Sample(s) Reference:

Kodalux Processing

Services

Received

: 04/24-25/91

P.O. #:

ANALYTICAL RESULTS - mg/l								
Sample: Location:	-001  Field  Blank	-002  MW-2 	-003  MW-3 	-004  NU-4 	-005  MW-5 	-006  MW-1 	-007    Trip    Blank	
Date Collected: Time Collected:	04/24/91  11:30	04/24/91  10:00	04/24/91  08:30	04/24/91  09:00	04/24/91  09:30	04/24/91  11:00	04/24/91   	,
· · · · · · · · · · · · · · · · · · ·							1 1	
Pet. Hydrocarbons, IR	0.10 U	61.2	0.10 U	   0.10 U	   0.10 U	0.47	0.10 U	
Chromium, Total	0.010 U	0.010 ປ	j 0.010 U	0.0326	0.0177	j 0.010 U	0.010 U	
Chromium, Nex	0.010 U	0.010 U	j 0.010 U	j 0.010 U	0.010 U	j 0.010 U	0.010 U	
Silver, Total	0.010 U	0.010 U	0.010 U	່ 0.010 ບ	j 0.010 U	0.010 U	j 0.010 u j	
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Unless otherwise noted, analytical methodology has been obtained from references as cited in 40 CFR, parts #136 & #261.

NY ID# in Rochester: 10145 NJ ID# in Rochester: 73331 NJ ID# in Mackensack: 02317 NY ID# in Hackensack: 10801

\*\* See attached data

Milal K. Perry

Laboratory Director



## LABORATORY REPORT

Job No: R91/01695 Date: MAY 16 1991

Client:

Mr. Ron Melkis Radian Corp. 155 Corporate Woods, Suite 100 Rochester, NY 14623

Sample(s) Reference

Kodalux Processing

Services

Received

: 04/24-25/91

P.O. #:

ANALYSIS * BY EPA	METHOD	624	ANALYT	CAL RES	BULTS -	ug/l		
Sample: Location:	-001  Field	-002  MW-2	-003  MW-3	-004  MU-4	† -005  MW-5	-006  MW-1	-007  Trip	-008  Lab Meth.
	Blank	i	İ	i	i	i	Blank	Blank
Date Collected:	04/24/91	04/24/91	04/24/91	04/24/91	04/24/91	04/24/91	04/24/91	j
Time Collected:	11:30	10:00	108:30	09:00	09:30	111:00	į	j
Date Analyzed:	05/01/91	05/01/91	05/01/91	05/01/91	[05/01/91	05/01/91	05/02/91	05/01/91
Chloromethane	2 U	2 U	1 2 U	] 2 U	1 2 0	່ 2 ປ	1 2 U	2 U
Bromomethane	j2 U	2 U	j 2 U	j 2 U	j 2 U	j 2 U	1 2 U	1 2 0
Vinyl Chloride	2 U	12 U	57.3	j 2 U	1 2 0	ן צט	. 2 U	2 U
Chloroethane	<b> 2</b> υ	12 U	2 U	2 U	j 2 U	2 U	į 2 U	j 2 U
Methylene Chloride	]2 U	12 U	2 U	j 2 U	j 2 U	j 2 U	2 U	j 2 U
Trichlorofluoromethane	2 U	2 U	2 U	2 U	j 2 U	2 U	1 2 U	1 2 0
1,1-Dichloroethene	2 U	183.5	136	2.30	1 2 U	i 2 U	i 2 U	1 2 11
1,1-Dichloroethane	]2 U	112.5	59.5	6.16	i 2 U	1 15.1	l 2 U	i 2 U
trans-1,2-Dichloroethene	2 U	js n	i 2 U	i 2 U	1 2 0	1 2 U	i 2 U	1 2 U
cis-1,2-Dichloroethene	2 U	12 U	i 2 U	i 2 U	i 2 U	3.81	i 2 U	1 2 0
Chloroform	4.24	12 U	i 2 U	i 2 u	1 2 U	2.22	1 2 U	1 2 0
1,2-Dichloroethane	12 U	2 U	i 2 U	1 2 U	i 2 ü	1 2 0	1 2 U	1 2 U
1,1,1-Trichloroethane	2 U	17500	669	8.59	3.37	44.6	1 2 0	1 2 0
Carbon Tetrachloride	2 Ü	2 U	į 2υ	i 2 U	1 2 U	1 2 U	2 U	i 2 u
Bromodichloromethane	12 U	2 U	1 2 U	1 2 U	1 2 U	1 2 0	1 2 U	1 2 U
1,2-Dichloropropane	2 U	12 U	i 2 U	1 2 0	1 2 U	1 2 U	1 2 0	) 2 U
Trans-1,3-Dichloropropene	12 U	i2 U	i 2 U	i 2 u	i 2 U	1 2 0	1 2 0	1 2 U
Trichloroethene	12 U	12 U	i 2 U	j 2 U	1 2 U	1 2 0	1 2 0	1 2 4
Dibromochloromethane	12 U	2 U	1 2 U	i 2 U	1 2 U	1 2 0	1 2 U	1 2 4
1,1,2-Trichloroethane	12 U	2 U	2 0	1 2 0	i 2 U	1 2 U	1 2 0	1 2 0
Benzene	2 U	12 U	3.45	1 2 0	1 2 U	1 2 U	1 2 0	1 2 0
1,3-Dichloropropene(Cis)	2 U	2 U	j 2 U	1 2 0	1 2 0	1 2 0	1 2 0	1 2 U
2-Chloroethylvinyl Ether	5 U	5 U	5 U	5 U	1 5 U	1 5 U	i 5 U	150
Bromoform	ט צן	2 U	2 U	1 2 U	1 2 0	Ι 2 υ	1 2 0	1 2 0
Tetrachloroethene	2 U	2 U	2 U	1 2 U	1 2 0	1 2 0	1 2 0	1 2 0
1,1,2,2-Tetrachloroethane	j2 U	2 U	2 U	2 U	1 2 U	1 2 U	1 2 0	1 2 0
Toluene	2 U	2 U	5.90	1 2 0	3.48	1 2 U	1 2 U	1 2 0
Chlorobenzene	[2 U	2 U	1 2 U	1 2 U	1 2 U	1 2 U	1 2 U	1 2 0
Ethylbenzene	2 U	2 U	1 2 U	1 2 0	1 2 U	1 2 U	1 2 0	1 2 U
Total Xylene (o,m,p)	12 U	12 U	1 2 U	1 2 U	,	,		
iotal Aytane (O,H,P)	ן ב ט	2 U	20	Z U	2 U	JSU	1 2 0	2 U



### LABORATORY REPORT

Job No: R91/01695

Date: MAY 13 1991

Client:

Mr. Ron Melkis Radian Corp.

155 Corporate Woods, Suite 100

Rochester, NY 14623

Sample(s) Reference

Kodalux Processing

Services

Received

: 04/24-25/91

P.O. #:

SURROGATE RECOVER	RIES / E	PA METH	OD 624*	ANA:	LYTICAL	RESULTS	; <b>-</b> %	
Sample: Location:	-001  Field  Blank	-002  MW-2	-003  MW-3	-004  MW-4	-005  MW-5	-006  MV-1	-007  Trip  Blank	-008  Lab Meth.  Blank
Date Collected: Time Collected:	04/24/91  11:30	  04/24/91  10:00	•	  04/24/91  09:00	•	  04/24/91  11:00	04/24/91 	
Date Analyzed:	  05/01/91	  05/01/91	  05/01/91	1	1	 	    05/02/91	    05/01/91
Surrogate Standard Recoveries	 		!    -	1	! !	1	1 	1
1,2-Dichloroethane-d4 (Acceptance Limits: 75-119%)	   94% 	99%	   94% 	90% 	   93% 	   92% 	   100% 	   98% 
Toluene d8 (Acceptance Limits: 85-110%)	95% 	98%   98%	   91% 	87% 	85% 	1   86 <u>%</u> 	   97% 	96X
Bromofluorobenzene (Acceptance Limits: 84-116%)	93% 	94%	87%   87%	86X 	   84% 	84%	   94% 	   95% 
	 	1	!   	1 ] !	1 [ [	 	! ! !	   
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	]   	   	 	1 1 1	! ! !	   	1 	 
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Unless otherwise noted, analytical methodology has been obtained from references as cited in 40 CFR, parts #136 & #261.

NY ID# in Rochester: 10145 NJ ID# in Rochester: 73331 NJ ID# in Hackensack: 02317 NY ID# in Hackensack: 10801

Milal K. Perry Laboratory Director

# 1E - VOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: General Testing Corp. Lab Code: 10145 Case No.: --Matrix: (soil/water) WATER Sample wt/vol: 5 (g/mL)ML

Level (low/med): LOW t Moisture: not dec. 100 Column (pack/cap): CAP

Number TIC's found: 0

Contract: RADIAN
SAS No.: -- SDG No.:
Lab Sample ID: 1695-BLK1
Lab File ID: >A2937
Date Received: -Date Analyzed: 05/01/91
Dilution Factor: 1.0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	
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# 1E - VOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: General Testing Corp.
Lab Code: 10145 Case No.: -Matrix: (soil/water) WATER
Sample wt/vol: 5 (g/mL)ML

Level (low/med): LOW & Moisture: not dec. 100 Column (pack/cap): CAP

Number TIC's found: 0

Contract: RADIAN
SAS No.: -- SDG No.:
Lab Sample ID: 1695-1
Lab File ID: >A2937

Date Received:

Date Analyzed: 05/01/91 Dilution Factor: 1.0

****											
CAS NU	_	COMPOUND				T	EST.CONC.	Q			
		284869#7#3# <b>687#2#6</b> 6			252	***	23222E###	2232			
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# 1E - VOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: General Testing Corp.
Lab Code: 10145 Case No.: -Matrix: (soil/water) WATER
Sample wt/vol: 5 (g/mL)ML

Level (low/med): LOW

t Moisture: not dec. 100

Column (pack/cap): CAP

Number TIC's found: 0

Contract: RADIAN
SAS No.: -- SDG No.:
Lab Sample ID: 1695-2
Lab File ID: >A2963
Date Received:

Date Analyzed: 05/02/91 Dilution Factor: 1.0

		RT	EST.CONC.	Q
CAS NUMBER	COMPOUND NAME	1	7	4655
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#### 1E - VOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: General Testing Corp.
Lab Code: 10145 Case No.: -Matrix: (soil/water) WATER
Sample wt/vol: 5 (g/mL)ML

Level (low/med): LOW
% Moisture: not dec. 100
Column (pack/cap): CAP

Number TIC's found: 2

Contract: RADIAN
SAS No.: -- SDG No.:
Lab Sample ID: 1695-3
Lab File ID: >A2942

Date Received: Date Analyzed: 05/01/91 Dilution Factor: 1.0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q				
1. 67641	2-Propanone	5.88	23	J				
2.	Unknown	25.73	13	3				
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#### 1E - VOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: General Testing Corp. Lab Code: 10145 Case No.: --Matrix: (soil/water) WATER (g/mL)ML Sample wt/vol: 5

Level (low/med): LOW \* Moisture: not dec. 100 Column (pack/cap): CAP

Number TIC's found: 2

Contract: RADIAN SAS No.: -- SDG No.: Lab Sample ID: 1695-4 Lab File ID: >A2943

Date Received:

Date Analyzed: 05/01/91 Dilution Factor: 1.0

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CAS NUMBER	COMPOUND NAME	RT *****	EST.CONC.	Q						
1. 67641	2-Propanone	5.89	70	J						
2	Unknown	25.71	11	J						
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### 1E - VOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: General Testing Corp. Lab Code: 10145 Case No.: --Matrix: (soil/water) WATER Sample wt/vol: 5 (g/mL)ML

Level (low/med): LOW % Moisture: not dec. 100 Column (pack/cap): CAP

Number TIC's found: 2

Contract: RADIAN
SAS No.: -- SDG No.:
Lab Sample ID: 1695-5

Lab File ID: >A2944 Date Received:

Date Analyzed: 05/01/91 Dilution Factor: 1.0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 67641	2-Propanone	5.88	****	
2.	Unknown	25.70	67	J
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## 1E - VOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: General Testing Corp. Lab Code: 10145 Case No .: --Matrix: (soil/water) WATER Sample wt/vol: 5 Level (low/med): LOW

\* Moisture: not dec. 100 Column (pack/cap): CAP

Number TIC's found: 3

Contract: RADIAN SAS No.: -- SDG No.: Lab Sample ID: 1695-6 Lab File ID: >A2945

Date Received:

Date Analyzed: 05/01/91 Dilution Factor: 1.0

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q	
1. 67641	2-Propanone	332222			
2.	Unknown	5.82 21.35	64	J	
3.	Unknown		8.0	J	
4.		25,69	17	J	
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## 1E - VOLATILE ORGANICS ANALYSIS DATA SHEET TENTATIVELY IDENTIFIED COMPOUNDS

Lab Name: General Testing Corp.
Lab Code: 10145 Case No.: -Matrix: (soil/water) WATER
Sample wt/vol: 5 (g/mL)ML

Level (low/med): Low % Moisture: not dec. 100 Column (pack/cap): CAP

Number TIC's found: 0

Contract: RADIAN

SAS No.: -- SDG No.: Lab Sample ID: 1695-7 Lab File ID: >A2955

Date Received:

Date Analyzed: 05/02/91 Dilution Factor: 1.0

CAS NUMBER	COMPOUND NAMS	RT		****	
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#### GTC REPORT #\_R91/1695

SECTION B

#### LABORATORY QUALITY CONTROL

Presented in this section is Quality Control Associated with the data provided in Section A of this report.

#### **Ouality Control Explanations:**

- (1) RUN QUALITY CONTROL Selected QC data from the analytical run in which your sample(s) were involved.
- (2) JOB SPECIFIC QUALITY CONTROL QC data specific to your set of samples.
- (3) DUPLICATES Replicate analyses of a given sample used to monitor precision. Relative Percent Difference is calculated as the difference divided by the average x 100.
- (4) MATRIX SPIKES Addition of a known amount of analyte to a sample. Recovery is calculated by subtracting original value attributable to the sample from the combined value. The difference is then divided by the amount added to calculate % recovery. Poor recoveries may indicate analytical interference due to the matrix of the sample. Any other samples of this matrix may also have been affected, high or low as indicated by the % recovery.
- (5) LABORATORY CONTAMINANTS Laboratory De-ionized water used to monitor for contamination during analysis.
- (6) BLANK SPIKES Same as item #4 but analyte is added to laboratory de-ionized water. This indicates the accuracy of analysis.
- (7) REFERENCE CHECK SAMPLES Samples from an outside source having a known concentration of analyte. Used as a measure of analytical accuracy.

When possible, all components of the above listed QC protocol are performed during an analytical run. The resulting data is compared to historical records when evaluating the quality of analytical runs. The data provided in your report has passed our Quality Assurance review.

**Quality Control Notes:** 

## GTC LABORATORY QUALITY CONTROL REPORT

CUSTOMER: Radian Corp.

JOB # : R91/01695

UNITS: mg/t

REPORT TYPE: Job Specific

    PARAMETER		ORIGINAL RESULT	DUPLICATE			AVERAGE RESULT					-	-	ACCEPT.   LIMITS %		ERENCE	-		ACCEPT.      LIMITS %
11/////////////////////////////////////	/////////	1	* PRECISI	ON			* MATRIX	SPIKING			BLANK	SPIKES	   	  - 	REFE	RENCE ST	ANDARD	    
Pet. Hydro	-001	0.10 U	0.10 U	INC	<b> *</b> +	INA	1.926	67.0	<b> *+</b>	0.10 U	1.926	67.0	59-107	REF	STD	6.83	104	*+
			<u> </u>	.	<u> </u>		<u> </u>		1	1	<u> </u>	<u></u>		<u> </u>		1		  00-110
Chromium 	-001   	0.010 U	0.010 U 	INC I	30   	0.010 U 	v. <i>2</i> 50 	85% 	80-120 	0.010 U   	ju. <i>2</i> 50 I	83% 	80-120   	REF	טוָט	5.00 	98% 	90-110    
Chrom. Hex	-001	0.010 U	0.010 U	INC	20	0.010 U	0.100	87%	60-128	0.010 U	0.100	101%	73-122	REF	STD	0.100	100%	75-120
11	<u> </u>	<u> </u>	l	.l	.	l	<u> </u>	<b>!</b>	<b> </b>	<b> </b>	<u> </u>	İ	ll	<b>I</b>		1	l	lI
Silver	-001	0.010 U	0.010 U	INC	1 1	0.010 U	0.0500	80%	80-120	0.010 U	0.050	90%	80-120	REF	STD	5.00	199%	90-110
11	<u>  </u>	l	l	.l	.	l	l	<u> </u>	l		l	l		l		1	<u> </u>	l1

<sup>\*\*</sup> Reference Check samples are not available for all analyses. ++ Outside of Quality Control Limits.

<sup>+\*</sup> No limits currently established.



# A Full Service Environmental Laboratory

VOLATILE ORGANICS - AQUEOUS SAMPLE

WATER VOLATILE MATRIX SPIKE RECOVERY

Lab Name: General Testing Corp.

Matrix Spike - Sample No.: R91/01695 -001

	SPIKE ADDED	SAMPLE CONCENTRATION	MS 2	QC LIMITS
COMPOUND			•	REC.
COMPOUND	(ug/1)	(ug/1)	REC #	REC.
Chloromethane	50	0	106%	D - 273
Bromomethane	50	0	103%	D - 242
Vinyl Chloride	50	0	114%	D - 251
Chloroethane	50	0	1118	14 - 230
Methylene Chloride	50	0	113%	D - 221
Trichlorofluoromethane	50	0	106%	17 - 181
1,1-Dichloroethene		_		
1,1-Dichloroethane	50 50	0.	102%	D - 234
	1	0	102%	59 - 155
trans-1,2-Dichloroethene	50	0	100%	54 - 156
cis-1,2-Dichloroethene		4.04		54 - 156
Chloroform	50	4.24	112%	51 - 138
1,2-Dichloroethane	50	0	101%	49 - 155
1,1,1-Trichloroethane	50	0	99%	52 - 162
Carbon Tetrachloride	50	0	101%	70 - 140
Bromodichloromethane	50	0	106%	35 - 155
1,2-Dichloropropane	50	0	108%	D - 210
Trans-1,3-Dichloropropene		0	81%	17 - 183
Trichloroethene	50	0	103%	71 - 157
Cis-1,3-Dichloropropene	50	0	95%	D - 227
Dibromochloromethane	50	0	97%	53 - 149
1,1,2-Trichloroethane	50	0	101%	52 - 150
2-Chloroethylvinyl Ether				D - 305
Bromoform	50	0	88%	45 - 169
1,1,2,2-Tetrachloroethane	50	0	94%	46 - 157
		·	. — — — — — — — — — — — — — — — — — — —	

# C	olumns	to be	used t	o flag	recovery	and	RPD	values	with	++.
++	= Value	es out	side of	QC li	mits					
MS	QC Limi	ts = 1	EPA Acc	eptanc	e Criteria	a				
RPD	Limits	= I	nternal	Accep	tance Cri	teria	3			
							-			

Spike Recovery:\_\_0\_\_ out of \_\_23\_\_ outside limits

	·	·		•
COMMENTS:			·	



# A Full Service Environmental Laboratory

VOLATILE ORGANICS - AQUEOUS SAMPLE

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: General Testing Corp.

Matrix Spike - Sample No.: R91/01695 -001

COMPOUND	SPIKE	SAMPLE	MS	QC
	ADDED	CONCENTRATION	%	LIMITS
	(ug/1)	(ug/1)	REC #	REC.
Tetrachloroethene Chlorobenzene Benzene Toluene Ethylbenzene m-Xylene o + p-Xylene	50 50 50 50 50 	0 0 0 0 0	95% 105% 107% 103% 103% 	64 - 148 37 - 160 37 - 151 47 - 150 37 - 162

# Columns to be used to flag recovery and RPD values with ++.
++ = Values outside of QC limits
MS QC Limits = EPA Acceptance Criteria

RPD Limits = Internal Acceptance Criteria

Spike	Recovery:_	0	out of	4	outside	limits		
COMME	NTS:						 	

page 2 of 2



# A Full Service Environmental Laboratory LABORATORY REPORT

Client:

Mr. Ron Melkis Radian Corp.

155 Corporate Woods, Suite 100

Rochester, NY 14623

Job No:

R91/01695

Date:

13 MAY , 1991

	    	95550	ENCE CHECK	    	
	-     -     <b></b> -				
EPA METHOD 624	ii 🔻	TRUE	, x	ii	ACCEPTANCE
	!!	VALUE	RECOVERY	H	LIMITS (%)
Date Analyzed: 05/01/91	-   	***********			
•	ii		i	ii	
Acrylonitrile	ii		i	ii	NA
Acrolein	ii		i	11	NA
Chloromethane	ii	20.0	122%	ii	D - 273
Bromomethane	ii	20.0	116%	ii	D - 242
Vinyl Chloride	ii	20.0	126%	ii	D - 251
Chloroethane	ii	20.0	49%	ii	14 - 230
Methylene Chloride	ii	20.0	119%	ii	D - 221
Trichlorofluoromethane	ii	20.0	94%	ii	17 - 181
1,1-Dichloroethene	iì	20.0	108%	ii	D - 234
1,1-Dichloroethane	ii	20.0	109%	ii	59 - 155
Total 1,2-Dichloroethene	ii	20.0	101%	ii	54 - 156
Chloroform	ii	20.0	111%	ii	51 - 138
1,2-Dichloroethane	ii	20.0	106%	ii	49 - 155
1,1,1-Trichloroethane	ii	20.0	99%	ii	52 - 162
Carbon Tetrachloride	ii	20.0	91%	ii	70 - 140
<b>Bromodichloromethane</b>	ii	20.0	105%	ii	35 - 155
1,2-Dichloropropane	ii	20.0	107%	11	D - 210
1,3-Dichloropropene-TRN	ii	20.0	106X	ii	17 - 183
Trichloroethene	ii	20.0	107%	ii	71 - 157
1,3-Dichloropropene(Cis)	ii	20.0	92%	ii	D - 227
Dibromochloromethane	ii	20.0	103%	ii	53 - 149
1,1,2-Trichloroethane	ii	20.0	108%	ii	52 - 150
2-Chloroethylvinyl Ether	ii	••	••	11	D - 305
Bromoform	ii	20.0	98%	11	45 - 169
1,1,2,2-Tetrachloroethane	ii	20.0	105%	11	46 - 157
Tetrachloroethene	ii	20.0	105%	ii	64 - 148
Chlorobenzene	ii	40.0	112%	11	37 - 160
Benzene	ii	20.0	105%	11	37 - 151
Toluene	ii	20.0	1 106%	11	47 - 150
Ethylbenzene	ii	20.0	104%	11	37 - 162



GTC REPORT #\_R91/1695

SECTION \_\_C

#### ANALYTICAL CHRONOLOGY

Presented in this section is a Laboratory Chronology listing the dates of all preparations and analyses performed on the samples covered in this report. Holding times, (maximum times in which to analyze a sample) are derived from the referenced methodology.

Chronology Notes:



# A Full Service Environmental Laboratory

Job No. R91/01695 Date MAY 10 1991

Client:

Radian Corp.

Sample(s) Reference

Kodalux Processing Services

Date Received: 04/24-25/91

Date Sample Taken: 04/24/91

	]	LABORAT DATI	ORY CI		LE				
Location:	Field Blank	W-2	MV-3	₩ <b>-</b> 4	MW-5	MV-1 	-007  Trip  Blank		
Pet. Hydrocarbons, IR	i	05/03/91			İ	İ	, 		   
Chromium, Total	04/29/91	04/29/91	04/29/91	04/29/91	04/29/91	04/29/91	04/29/91		
Chromium, Hex	04/25/91	04/25/91	04/25/91	04/25/91	04/25/91	   04/25/91 	04/25/91		
Silver, Total	04/29/91	04/29/91	04/29/91	04/29/91	   04/29/91 	   04/29/91 	04/29/91		
624 Scan	05/01/91	05/01/91	05/01/91	   05/01/91 	   05/01/91 	   05/01/91 	   05/01/91 		
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## GTC REPORT #\_R91/1695

SEC	CTION	<u>D</u>	
FIELD	DOCUM	MENTATIO	N

Presented in this section is all support documentation requested.

## **Documentation Provided:**

(	X )	Chain of Custody Forms
(	)	Analytical Request Forms
(	)	Shipping Receipts
(	)	Laboratory Receipt Log
,	,	Other:

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# **FINAL DRAFT** PRELIMINARY ASSESSMENT REPORT **EASTMAN KODAK PROCESSING LAB FAIR LAWN, NEW JERSEY**

### PREPARED UNDER

**TECHNICAL DIRECTIVE DOCUMENT NO. 02-9104-01 CONTRACT NO. 68-01-7346** 

**FOR THE** 

**ENVIRONMENTAL SERVICES DIVISION** U.S. ENVIRONMENTAL PROTECTION AGENCY

JULY 19, 1991

**NUS CORPORATION SUPERFUND DIVISION** 

SUBMITTED BY:

SITE MANAGER

FIT OFFICE MANAGER

#### SITE SUMMARY AND RECOMMENDATION (CONTD)

Additional field activities at the Kodalux facility have included the installation of one monitoring well adjacent to the location of the oil tanks and the removal of approximately 15 yards of gasolinetainted soil from below the former gasoline pump (Ref. No. 33). Accordingly, Kodak reportedly submitted an initial Discharge and Corrective Action Report (DICAR) for Case No. 90-05-22-1638 to the NJDEP Bureau of Underground Storage Tanks (BUST) on August 1, 1990, which apparently included analytical data from monitoring and irrigation well sampling. Neither the report nor cited soil analyses were located in site files (Ref. No. 33). However, Kodak summarized results reported in the DICAR in correspondence to the NJDEP BUST dated October 26, 1990 (Ref. No. 33). Specifically, Kodak indicated that results of a second monitoring and irrigation well sampling did not show the presence in groundwater of semivolatile or volatile compounds associated with No. 6 heating oil and confirmed the initial analysis submitted with the DICAR. However, subsequent analyses of samples collected from on-site monitoring wells on April 23 and 24, 1991 do not confirm this assertion. Specifically, analyses show the presence of petroleum hydrocarbons in monitoring wells downgradient of the former location of the fuel oil tanks, with a maximum reported concentration of -61,200 parts per billion (ppb) (Ref. No. 43). Although a discharge of petroleum products was reported with corresponding elevated concentrations detected in nearby groundwater monitoring wells, petroleum products are not eligible for consideration as hazardous substances under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (Ref. No. 48). It is assumed that the four tanks were not contaminated with CERCLA-eligible substances, as the contents were reported to be heating oil and unleaded gasoline. NJDEP BUST Case No. 90-05-22-1638 for the release of petroleum products from USTs previously used at the Kodalux facility is pending.

Excavation of the dry well was completed in June 1990; soil contamination was discovered beneath it. Accordingly, the excavation contractor filed a Communications Center Notification Report with the NJDEP on June 15, 1990 regarding a release of an unknown amount of liquid organics (Ref. No. 41). This case was assigned to the NJDEP Division of Hazardous Waste Management - Metro Enforcement with a corresponding case number of 90-06-15-1528. Subsequent analyses of five soil samples collected from below the concrete vault indicate the presence of 1,1,1-trichloroethane (TCA) and xylene, with a maximum reported concentration of 5,000,000 ppb TCA and 21,000 ppb total xylenes (Ref. No. 42). In correspondence to the Environmental Protection Agency (U.S. EPA) dated January 29, 1991, Kodak reported that vapor analyses indicated detectable levels of TCA, trichloroethylene, toluene, and xylene; groundwater samples collected from an on-site monitoring well and irrigation well showed detectable concentrations of volatile organics and formaldehyde (Ref. No. 4). Kodak did not provide the date(s) and location(s) of analyses and samples. Subsequent to the installation of

## SITE SUMMARY AND RECOMMENDATION (CONTD)

four additional monitoring wells in March 1991, groundwater sampling was conducted on site on April 23 and 24, 1991 (Ref. Nos. 43, 47). Target chemicals specific to photoprocessing operations were analyzed for, including TCA, silver, cyanide, formaldehyde, hexavalent chromium, and chromium (Ref. Nos. 29, 36, 37). Analyses of groundwater samples from the monitoring wells indicated the presence of TCA, 1,1-dichloroethene, 1,1-dichlorethane, vinyl chloride, benzene, toluene, cis-1,2-dichloroethane, formaldehyde, and chloroform (Ref. No. 43). The NJDEP's Kodalux facility cases are pending resolution.

In addition to the releases reported to the NJDEP, Fair Lawn Health Department Complaint and Inspection Record No. 910107 for Qualex Labs indicated that an anonymous report was made to the State (assumed to be the NJDEP) regarding the dumping of hazardous materials or chemicals. No other information was available; the identity, quantity, and location of materials dumped, if any, are unknown (Ref. No. 27).

Groundwater contamination with CERCLA hazardous substances is known to have occurred in the area of the Eastman Kodak Site in Fair Lawn. Specifically, public supply well No. 24 located on the Kodalux facility property has been closed as a result of a release from two sources upgradient of the site (Ref. Nos. 10, 17, 33, 34). However, it is probable that a prior release of CERCLA-eligible substances from the Eastman Kodak Processing Lab Site dry well has further contributed to groundwater contamination in the area. The dry well has been variously described as a dry well used for fire suppression (Ref. No. 4) or a cement vault with a clay floor used for washwater (Ref. No. 34). Analyses of soils beneath the excavated dry well and groundwater downgradient of the dry well support a conclusion that a prior release from the unit had occurred. Specifically, TCA was detected in soil beneath the dry well as well as in groundwater downgradient of the dry well in greater concentration than that upgradient of the dry well.

Although groundwater contamination at the Eastman Kodak Photoprocessing Laboratory Site is a concern, it is improbable that release of hazardous substances to soil, surface water, or air has occurred, as the probable source of contamination is subsurface. A SITE INSPECTION for the Eastman Kodak Processing Lab Site is recommended, as groundwater contamination potentially affecting the potable water supplies of more than 109,911 persons within 4 miles is attributable to the site.

464. 140. O

# PART II: WASTE SOURCE INFORMATION

For each of the waste units identified in Part I, complete the following items.								
Waste Unit	_2	- Dry Well/Cement Vault						
Source Type	•							
	Landfill		Land Treatment					
X	Surface Impoundment	<u> </u>	Chemical Waste Pile					
	Drums	***************************************	Scrap Metal or Junk Pile					
	Tanks/Containers		Tailings Pile					
<del></del>	Contaminated Soil		Trash Pile					
-	Pile	<del></del>	Other					
well used for direct depo- reported the washwaters contaminate incident to Number was the Division collected for monitoring	I on site at the Eastman Koda or fire suppression and a ceme sition of hazardous substance at the dry well was previously deposited are unknown, on was discovered beneath it, the NJDEP via a Communical of 90-05-22-1638. As hazardous of Hazardous Waste - Manage om below the dry well, and	ent vault with a clay is into the dry well by used for washwa. The dry well washwa. Accordingly, Kod tion Center Notifical substances were in ment Metro Enforced groundwater san Additional monitorion.	te has been variously described as a dry of floor. Although there is no record of it, the Fair Lawn Department of Health sters. The composition and amount of its excavated in June 1990, and soil lak's excavation contractor reported the ation Report. The Corresponding Case involved, the NJDEP assigned the case to rement. Subsequently, soil samples were inplies were collected from an on-site ing wells were installed in March 1991 below.					
Hazardous \	Waste Quantity							
The quantity contamination	y of contaminated soil associon are currently unknown.	clated with the dr	y well and the source and extent of					
Hazardous S	iubstances/Physical State.							
and total xy	the soil under the excavated di denes. Soil vapor analyses sho	wed the presence of	presence of 1,1, 1-trichloroethane (TCA) of TCA, trichloroethylene, toluene, and					

Ref. Nos. <u>4. 28. 33</u>

#### PART III: EXISTING ANALYTICAL DATA

Soil sampling at the Eastman Kodak Processing Lab Site related to the release of petroleum products from four underground storage tanks was conducted subsequent to the excavation of the units.

Soil samples were collected from under the fuel oil tanks on May 22, 1990. The results or a summary of these results were not located in site files. However, a June 1990 report by a consultant to Kodak reportedly summarizes findings related to soil contamination under the two gasoline tanks. The presence of elevated levels of Total Petroleum Hydrocarbons (TPHC) in the soil was noted (Ref. No. 33).

Additionally, results of an August 1990 DICAR were summarized in correspondence from Kodak to the NJDEP dated October 26, 1990. Specifically, Kodak indicated that the results of a second monitoring and irrigation well sampling did not show the presence in groundwater of semivolatile or volatile compounds associated with No. 6 heating oil and confirm the initial analyses submitted with the DICAR (Ref. No. 33). The reports or cited analyses were not located in site files.

Soil sampling was also conducted related to the release of CERCLA hazardous substances from an on-site dry well. Subsequent analyses of five soil samples collected from below the concrete vault indicate the presence of 1,1,1-trichloroethane (TCA) and xylene with a maximum reported concentration of 5,000,000 parts per billion (ppb) TCA and 21,000 ppb total xylenes. Refer to Reference Number 42 for specifics. In correspondence to the U.S. EPA dated January 29, 1991, Kodak reported that vapor analyses indicated detectable levels of TCA, trichloroethylene, toluene, and xylene; groundwater samples collected from an on-site monitoring well and irrigation well showed detectable concentrations of volatile organics and formaldehyde (Ref. No. 4). Kodak did not provide the date(s) and location(s) of analyses and samples. Subsequent to the installation of four additional monitoring wells in March 1991, groundwater sampling was conducted on site on April 23 and 24, 1991 (Ref. Nos. 43, 47). Target chemicals specific to photoprocessing operations were analyzed for, including TCA, silver, cyanide, formaldehyde, hexavalent chromium, and chromium (Ref. Nos. 36, 37). Analyses of groundwater samples from the monitoring wells indicated the presence of TCA, 1,1-dichloroethene, 1,1-dichlorethane, vinyl chloride, benzene, toluene, cis-1,2-dichlorethane, formaldehyde, and chloroform (Ref. No. 43).

No monitoring or sampling has been conducted at the Eastman Kodak Processing Lab Site by NUS Corporation Region 2 FIT.

3. What is the depth from the lowest point of waste disposal/storage to the highest seasonal level of the saturated zone of the aquifer of concern?

The seasonal high of the saturated zone of the aquifer of concern is 15 feet below ground. The former dry well is the lowest point of waste disposal/storage of CERCLA hazardous substances. The depth below ground of this surface impoundment is unknown; the depth is assumed under a worst-case scenario to be 6 feet. However, a release to groundwater has already been documented; the estimated depth from the dry well to the aquifer of concern is 0 feet.

Ref. Nos. 4, 10, 30, 34, 43

4. Identify and determine the distance to and depth of the nearest well that is currently used for drinking purposes?

The site is approximately 1,500 feet east of a Fair Lawn public supply well located on 11th Street, which is the nearest well used for drinking purposes. The well depth is 300 feet. There is a well on site (Well No. 24), but it is closed due to contamination upgradient of the Eastman Kodak Photoprocessing Laboratory Site.

Ref. Nos. 10, 11, 13, 14, 17, 23, 34

5. If a release to groundwater is observed or suspected, determine the number of people that obtain drinking water from wells that are documented or suspected to be located within the contamination boundary of the release.

Two of the 12 public supply wells serving 16,000 persons in Fair Lawn are located within the contamination boundary of release, which is considered to cover the area within a 0.50-mile radius of the site; an apportioned population of 2,667 persons estimated to obtain drinking water from these wells.

Ref. Nos. 4, 11, 13, 19, 30

6. Identify the population served by wells that are not expected to be contaminated located within 4 miles of the site that draw from the aquifer of concern.

Distance	<u>Population</u>
0 - <del>1</del> mi	0
>1-1 mi	0
>	8,005
>1-2 <i>mi</i>	26,030
>2-3 <i>m</i> i	38,822
>3 - 4 mi	34,387

State whether groundwater is blended with surface water, groundwater, or both before distribution.

There are four water companies utilizing groundwater within 4 miles of the site: Ridgewood, Hawthorne, Garfield, and Fair Lawn. Forty-one of the 56 Ridgewood public supply wells are

10. What is the distance in feet to the nearest downslope surface water? Measure the distance along a course that runoff can be expected to follow.

The distance from the site to Henderson Brook following the probable course of runoff is approximately 1,000 feet.

Ref. Nos. 11, 18, 20

11. Determine the type of floodplain that the site is located within.

The site is not located within a flood plain.

**Ref. No. 20** 

12. Identify drinking water intakes in surface waters within 15 miles downstream of the site. For each intake identify: the name of the surface water body in which the intake is located, the distance in miles from the point of surface water entry, population served, and stream flow at the intake location.

There are no drinking water intakes in surface waters downstream from the site.

Ref. Nos. 13, 21, 22, 23

13. Identify fisheries that exist within 15 miles downstream of the point of surface water entry. For each fishery specify the following information:

Fishery Name	Water Body Type	Flow (cfs)	Saline/ Fresh/ Brackish
Passaic River (including Dundee Lake)	Moderate to Large Stream	850	Fresh
Newark Bay	Coastal Tidal Water	N/A	Brackish

The Passaic River above the Dundee Lake is stocked with muskie and trout, which are reportedly caught for purely recreational purposes and are not edible.

Ref. Nos. 20, 24, 25, 26

14. Identify surface water sensitive environments that exist within 15 miles of the point of surface water entry. For each sensitive environment specify the following:

Sensitive	Water		Wetland Frontage
Environment	BodyType	Flow (cfs)	(miles)
Passaic River Wetlands	Moderate to Large Stream	850	4.5
Newark Bay Wetlands	Coastal Bay	N/A	0.5
Ref. Nos. 31, 38, 50			

Drums were observed on site during the NUS Corp. Region 2 FIT off-site reconnaissance. A release to air of hazardous substances from the drums is not expected, as the containers appeared to be intact and site files did not include any record of a release or information identifying the contents as hazardous.

Ref. Nos. 4; 28; 33; 34; 44; 45; Attachment 1, Photographs

20. Determine populations that reside within 4 miles of the site.

<u>Distance</u>	<u>Population</u>
0 - <del>1</del> mi	499
> <del>1 - 1</del> mi	2,432
>}-1 mi	13,513
>1 - 2 mi	67,237
>2 - 3 mi	116,773
>3 - 4 mi	109,386
Ref. Nos. 11, 15	

21. \ Identify sensitive environments, including wetlands and associated wetlands acreage, within \(\frac{1}{2}\) mile of the site.

0-1 Mile
Sensitive Environments/Wetland Acreage

‡-‡ Mile
SensitiveEnvironments/Wetland Acreage

There are no sensitive environments within 0.5 mile of the site.

Ref. Nos. 11, 31, 38

22. If a release to air is observed or suspected, determine the number of people that reside or are suspected to reside within the area of air contamination from the release.

A release to air is not observed or suspected.

Ref. Nos. 4; 28; 33; 34; 35; Attachment 1, Photographs

23. If a release to air is observed or suspected, identify any sensitive environments, listed in question No. 21, that are or may be located within the area of air contamination from the release.

A release to air is not observed or suspected.

Ref. Nos. 4; 28; 33; 34; 45; Attachment 1, Photographs

	12.	Site Status 図 Active Years of Operation	☐ Inactive	(	] Unknown	~		
		⊠ Active	□Inactive	C	7 Unknows			
	13.		☐ Inactive	C	7 Unknows			
	13.	Vacre of Oneration		_	7			
		rears or obereasing	<u>1961*</u> to	o <u>Present</u>	_			
		* Property has been dinitiated concurrent	•	csince 1961; (	operations a	re assume	ed to have been	
. 1	14.	Identify the types of above- or below-growaste unit numbers	ound tanks or c	ontainers, la	nd treatmer	nt, etc.) o		
	•	(a) Waste Source	\$					
		Waste Unit No.	Waste So	urce Type	<u>Facil</u>	ityName f	or Unit	
		1 1	<u> Inderground Sta</u>	orage Tanks	No.		and unleaded	<u>qasoline</u>
			Surface Impound Drums	lment			ment vault	
	• /	(b) Other Areas of their locations on site	aneous spills, d	lumping, etc	. on site; d	escribe th	e materials an	d identify
		On May 22, 1990, t detected in the subs 90-05-22-1638.						
		On June 15, 1990 contamination unde second incident w Currently, neither ca	erneath a dry was assigned Ca	rell-on site se Number	and notified 90-06-15-15	the NJD	EP of the incid	lent. This
		There was an anon incident allegedly of material(s) spilled, if	occurred on De	cember 4, 1	990. The i			
		Ref Nos. 1, 2, 3, 4, 1	1, 27, 28, 32, 41		-			٠
-	4 2	Information availab	le from				•	
,	15.							
,	17.	Contact Army Broch	Yu	Agency U.S	S. EPA Regio	2n 2	Tel. No. (908)	906-6802

Certified Ground-Water and Environmental Specialists

October 29, 1990

N.J. Dept. of Environmental Protection Div. of Hazardous Waste Management 2 Babcock Place West Orange, New Jersey 07052

0CT 3 n

Attention: Mark Commandatore

> Re: Revisions to Report

> > Kodalux Processing Laboratory, Fair Lawn, NJ

Dear Mr. Commandatore:

Attached is a revised copy of our report originally dated July 1990 entitled, "Solvent Storage Room Floor Resurfacing and Dry Well Removal for Kodalux Processing Laboratory, Fair Lawn, NJ." Please note the following corrections:

- In Section 3.1 Cinder Block Walls 1,1,1-trichloroethane was detected in the sample at 101 ppm.
- Table 1 Dry Well Confirmatory Soil Samples has been revised and now is consistent with the laboratory data reports. 1,1,Dichloroethane has been changed to 1,1,dichloroethene and trichloroethane has been changed to trichloroethene.

If there are any questions regarding these corrections, please do not hesitate to call the undersigned.

Sincerely,

Eric A. Weinstock

Project Manager

EAW:mg

cc: Dick Spiegel Richard Wilson Solvent Storage Room Floor Resurfacing & Dry Well Removal for Kodalux Processing Laboratory Fair Lawn, NJ

July 1990

Revised October 1990

# Prepared for:

Eastman Kodak Company
Environmental Technical Services
Health and Environmental Laboratory
901 Elmgrove Road
Building 9 West
Rochester, New York 14653-5710

Prepared by:

CA Rich Consultants, Inc. 404 Glen Cove Avenue Sea Cliff, New York 11579 SOLVENT STORAGE ROOM FLOOR RESURFACING & DRY WELL REMOVAL FOR KODALUX PROCESSING LABORATORY FAIR LAWN, NJ

#### 1.0 INTRODUCTION

This summary report documents CA Rich Consultants, Inc. removal of a dry well installed in conjunction with a fire suppression system for the facility. The solvent storage room had a drain connected to the dry well to remove fluids incase fire activated the sprinklers. It also describes the subsequent resurfacing of the floor area within this same solvent storage room. A location map is included on Figure 1.

The removal work was performed in accordance with a written CA Rich Consultants, Inc. (CA RICH) Proposal dated March 19, 1990. Field operations commenced May 22 and were complete on June 4, 1990 and is authorized by Kodak's Purchase Order No.LR-KD7-32571W. CA RICH provided overall job management and field oversight of all removal activities, including the collection of confirming soil samples from within the dry well excavation. The physical removal of the dry well and resurfacing of the solvent storage room floor was performed by State-registered Direct Environmental who is subcontracted to CA RICH. Chemical analyses were performed by State-certified Nytest Environmental Laboratories, an independent Contractor. The interstate transportation of all hazardous materials was performed by HazMat Environmental Group, Inc.

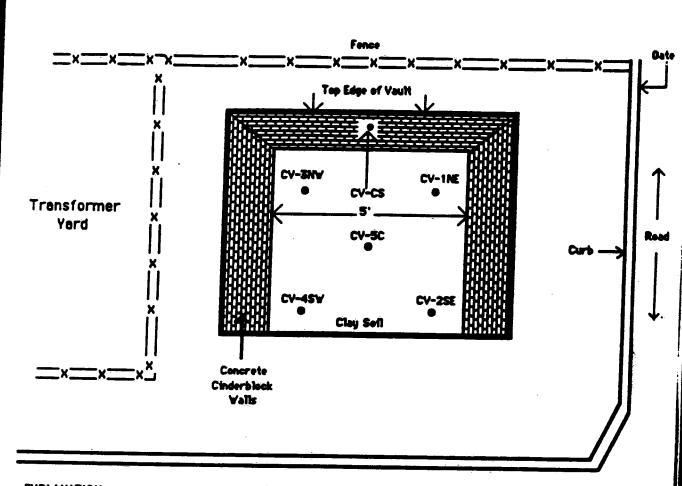
#### 2.0 FIELD ACTIVITIES

### 2.1 Site Preparation

Prior to beginning the dry well removal program, a utility clearance was conducted by the local utilities to locate any underground lines in or near the planned area of excavation. A decontamination pad, constructed of bermed plastic sheeting and graded with a contained sump at one end, was prepared for high-pressure cleaning of the excavation equipment. Bermed plastic sheeting was also used for the preparation of a temporary drum staging and storage area.



CA RICH CONSULTANTS, INC. Certified Ground-Water and Environmental Specialists	Kodalux Processing Laboratory Rair Lawn, New Jersey				
	Prepared By:	STS	Date:	June 1990	
404 Glen Cove Avenue, Sea Cliff, N.Y. 11579	Reviewed By:	EΛW	Figure:	1	



**EXPLANATION** 

Drivevay

Sample location
 Not to Scale

# MAP OF SOIL AND CONCRETE SAMPLE LOCATIONS

CA RICH CONSULTANTS, INC.
Certified Ground-Water and Environmental Specialists

Rodalux Processing Laboratory
Fair Lawn, New Jersey

Prepared By: STS

Date: June 1990

404 Glen Cove Avenue, Sea Cliff, N.Y. 11579

Reviewed By: EAW

Figure: 2

The cinder block chip sample was collected using a decontaminated steel chisel and hammer. Collection of each of the soil samples was done by using pre-decontaminated stainless steel sampling spoons. A field blank of the sampling device well as a trip bank, was taken and analyzed for volatile aganics for quality control persons.

## 2.4 Backfilling of Excavations

Following completion of the excavation work and materials testing, a plastic sheet was placed along the bottom and the excavation was then backfilled with the designated clean soil that had been previously removed from above the dry well (when it was in-place), and from adjacent areas.

# 2.5 Resurfacing of the Solvent Storage Room Repor

The surface of the existing solvent storage room floor was high-pressure, hot-water, washed and scraped to remove the previous floor coatings. The scrapings from the floor were containerized in DOT 21C fiber drums and placed upon the onsite drum staging area.

Prior to this Project, both floor drains for the solvent storage room had been sealed shut with a cement plug. To allow for complete containment of a potential leak from any of the 55-gallon drums stored in this room, new floor sumps were installed at each of the two doorways leading to the room. Each sump was lined with a high-density polyethylene plastic tank and subsequently covered with a heavy duty fiberglass grate.

The freshly-scraped fillor surface was then covered with a coating of Concrete Protection Systems (TM), Overkote Plus solvent-resistant floor coating. Care was taken to fully overlap the floor coating along the lip of the plastic-lined sumps to create an impermeable seal.

#### 3.0 SAMPLE ANALYTICAL RESULTS

#### 3.1 Cinder Block Walls

One sample of the dry well's cinder block walls was collected and analyzed for volatile organics. This wall material contained 1,1,1-trichloroethane at a concentration of 101 ppm. Analytical results are illustrated on Figure 2 and included in Appendix B.

#### 3.2 Dry Well Bottom

The five (5) subsoil samples collected from the bottom of the dry well (see Figure 1) contained several volatile organic compounds with 1,1,1-trichlorethane detected in the 1,000 to 5,000 ppm range. Sample analytical results are given on Table 1 with a copy of the original laboratory report attached as Appendix B.

#### 4.0 DISPOSAL OF HAZARDOUS MATERIALS

### 4.1 Concrete Dry Well Disposal

The cinder blocks and adjacent soils that were removed during the dry well excavation activity are safely staged on bermed plastic sheeting at the Kodalux Facility. A cover of anchored and weighted plastic sheeting was placed over this material as well. Materials disposal will be incorporated into the next phase of removal work at this Facility.

## 4.2 Dry well Bottom Sludge and Fluid

All of the fluid contained within the dry well during this removal program, as well as the high-pressure, hot-water wash rinsate, was transferred into DOT 17H 55-gallon drums. The bottom sludges were transferred into plastic-lined DOT 21C fiber drums. Upon completion of the dry well removal, these drums were temporarily placed upon the drum staging area. All of these drums were then loaded onto a manifested HazMat, Inc. trailer on June 1, 1990, and shipped to a permitted Treatment Storage and Disposal (TSD) facility.

TABLE 1

# DRY WELL Confirmatory Soil Samples Concentration in Parts Per Million (PPM)

في المنظمة المصدر ويضف الأن و المستان الأن في والرواق والرواقة في المنظمة الأن والماراة والأن والماراة أن والم

COMPOUND	CV-NBKWL	CV-1NE	CV-2SE	CV-3NW	CV-4SW	CV-5C	TOID DI ANIE	
Adadh.d				3.300	01-45W	CV-SC	TRIP BLANK	FIELD BLANK
Methylene Chloride	J	49.0 B	53.0 B	55.0 B	50.0 B	60.0 B	JB	ND
2-Propanone	ND	JB	JB	JB	ND	ND		ĺ
	ŀ					N	J	ND
11-Dichloroethene	ND ND	ND	J	96	ND	ND	ND	ND
111-Trichloroethane	101	1600	3000	5000	2000	1200	,,,	
Trichtonooth	İ İ					1200	ND	ND 1
Trichloroethene	ND	ND	ND	J	ND	ND	ND	ND ND
Toluene	ND	ND	ND					
	,			J	ND	ND	ND	ND
Xylene (total)	ND	J	ND ND	21	ND	ND	150	
Xylene (total)	ND	j	ND	21	ND	ND .	<b>ND</b>	ND ND

#### NOTE:

B - Indicates possible/probable blank contamination.

J - Indicates detected below Method Detection Limit (MDL).

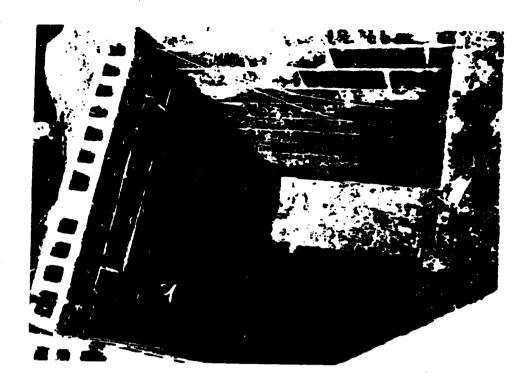
### 4.3 Solvent Storage Room Floor Scrapings

Prior to resurfacing the solvent storage room floor, the existing floor surface was high-pressure, hot-water washed and scraped to remove the previous coatings. The wash water rinsate was placed into 55-gallon drums and the floor scrapings consolidated into 21C fiber drums. These drums were temporarily placed on the drum staging area and shipped out on June 11, 1990 with the dry well sludge and fluid.

#### 5.0 CONCLUSIONS

- 1. The soil samples collected from beneath the dry well contained concentrations of volatile organic compounds in excess of 5,000 ppm. The apparent source(s) of these solvent-related materials is accidental or incidental spillage and/or leakage of the drummed solvents that are stored in this room.
- 2. On June 15, 1990 (the first day CA RICH received the analytical results), CA RICH, as directed by KODAK, notified the State's Action Hot Line of this in-place 'release'. The Kodalux Facility was then assigned Case No. 90 06 15 1528 for this release.

# APPENDIX A PHOTOGRAPHIC LOG OF FIELD ACTIVITIES



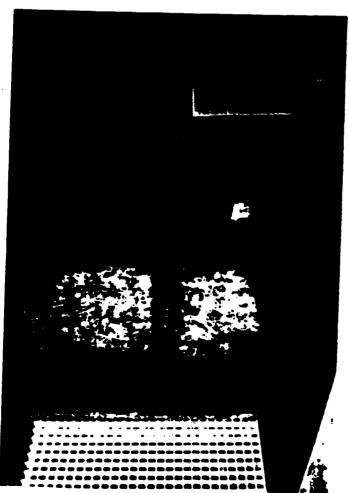
Concrete Vault before excavation



Concrete Vault during excavation



Chemical Storage Room floor before chemical resistant coating



Chemical Storage Room floor with new chemical resistant coating

# APPENDIX B ANALYTICAL DATA

TOTAL ANALYTICAL SERVICES FOR A SAFE ENVIRONMENT TYTEST ENVIRONMENT INC

Project No.: 8018835

Log to No: 4796

P.O. No.: Pending

Octa: Nay 31, 1990

MULTICAL DATA REPORT PACKAGE FOR

C.A. Rich Consultants

404 6len Cove Avenue

See Cliff. N.Y. 11579

Attn: Eric Heinstock Ref: Kode hav-Feir Lann, NJ

SUPLE **IDENTIFICATION**  LABORATORY MARCE

TYPE OF

SEE NEXT PAGE

REPORT PREPARED BY: PARAG K. SWH. Ph. D. ORGANIC LAB. NAVIGER

FRANK BUCZYNSKI INCREMIC LIE. MANGER

DOOLS SEELEY LABORATORY DIRECTOR FROM OUR TESTS OF THUS INTERIAL.

WE CERTIFY THAT THIS REPORT IS A

THE NEWS OF MESLIS CITABLE

EPETRILLY ABUTTED.

DEDITIVE V.P.

ck

Report on sample(s) furnished by client applies to sample(s). Report on sample(s) obtained by us applies only to lot sampled information contained herein is not to be used for reproduction except by appeal permission. Sample(s) will be retained for thirty days maximum after date of report unless specifically requested otherwise by client. In the event that there are portions or parts of sample(s) remaining after Nytsel has completed the required tests. Nytest shall have the option of returning such tempte(s) to the client at the client's expense

# nytest environmental...

Project No.: 9016655 Leg In No: 6796

SMPLE	LIBORATORY	THE OF
IDENTIFICATION	MISER	BUPLE
C/-BE	4796001	<b>30</b> [L
CV-25E	4796002	SOIL
CV-SW	4796003	SOIL
CV-494	4796004	<b>8011</b>
CI-SC	4796005	SOLL
10 6/24	2003003	9011

14

# nytest environmental...

#### Table of Contents

		Project No.: 9016835	App	-
	• .	•		
ı.	Sample Analysis Request Fere		NA	
11.	Chain of Quetody	••••••	1	
111.	Laboratory Deliverable Checklist		2 -	3
IV.	Laboratory Chronicle	••••••	4	
٧.	Non Conformance Summery (Case Narrective)	•••••	5	
n.	Nuthadology Summery	• • • • • • • • • • • • •	6 -	8
M.	Data Reporting Qualifiers	••••	9	
711.	Sample Naturities	• • • • • • • • • • • • • • • • • • • •	10 -	30
X.	Quality Assurance Summary		31 -	42

14 A reas mission mission in the	And Ele	L CAUE AUB
Nytest Environmental Inc.	REPORT TO: Client Name CA RI	ICH CONSULTAND
		Page 01
	CHAIN OF CUSTODY RECORD	1
/	•	•

SHIP TO:	Nytest Environmental Inc.
	60 Seaview Blvd.
	Port Washington, NY 11050
	(516) 625-5500

REPORT TO:	Client Na	m. C	A RICA	er Co	NSUL	שייין
	Address	404	GLOW	COVE	AUD	
			CLIFF			
	Phone	516-	\$34 -Jee	•		٠.,
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Sample I.D.	Date	Date/Time Sampled		mple scription	,	No. Of Con- tainers	ANALYSIS REQUESTED			
CH-INE	5/20	NCON	501	_		1	VOA			
CU-756	11	åg.	17			l	VOA			·
CV -3NW	"	14	4,			1	VOA			
Cy-ASW	<b>34</b>	4,	1,			1	VOA			
CV-5C	٠,	٤,	l <sub>q</sub>			1	VOA			
PL-1	5/20	700	٠,			1	TPMC			
PL-2	1.		٠.			1	TPMC			
PL-3	14	4.	•			2	TPNC	BTOX		- -
92-4	•,	4.	4,			1	TPHC			
PL 5	••	4	60			1	Tenc	· ·	··	
PL-6	••	٠.	le	<del> </del>		1	TPHC			•
	7	二			Portor	7				-
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Special Instructions/Comments	 	 <u> </u>	 
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# nytest environmental...

# Laboratory Deliverable Check List

		; Complete
I.	Cover Page, Format, and Laboratory Certification (Include Cross Reference Table of Field I.D. # and Laboratory I.D. #)	
II.	Chain of Custody	
III.	Summary Sheets Listing Analytical Results Including QA Data Information	
IV.	Laboratory Chronicle and Methodology Summary including Sampling Holding Time Check	
v.	Initial Calibration and Continuing Calibration (Time & Date Summary)	
VI.	Tune Summary (MS)	
VII.	Blanks (Method, Field, Trip)	
VIII.	Surrogate Recovery Summary	
IX.	Non-Conformance Summary	
K		<b>A</b>
(F	lius frante	5/3/
	Laboratory Manager	Sate

•	No Iss
GC/MS Tune Specifications	1.
a. BFB passed b. DFIPP passed	$=$ $\sim$
•	
GC/MS Tuning Frequency - Performed every 12 hours	
g WS Calibration - Initial Calibration	
- riormed within 30 days before sample analysis	
and continuing calibration performed within 24	•
hours before sample analysis .	
GC/MS Calibration Requirements	
	✓
<ul> <li>a. Calibration Check Compounds</li> <li>b. System Performance Check Compounds</li> </ul>	ーラ
5. System Periodames them toupomes .	
Blank Contamination - List	
compounds for each fraction .	
a. VOA Fraction - Mich Effetone. b. B/N Fraction	1
a. VOA Fraction - Medy GRETUME.	
b. B/N Fraction	<del></del>
c. Acid Fraction	
Surrogate Recoveries Meet Criteria	1
(If not met; list those compounds and their	
recoveries which fall outside the acceptable range)	•
	•
e. VOA Fraction	
b. B/N Fraction	
c. Acid Fraction	<del></del>
Extraction Holding Time Het	
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Comments:	1
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Analysis Holding Time Met	
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7	
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Additional Comments:	
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#### Laboratory Chronicle

		ALCHEC US: Anion:
Chient Name:	C.A. Rich Consultants	
Outo America: Sample (D: se	i: \$/26/90 e chein of austody	
Organics Extra	estion:	
	1. Æis	
	2. Sees/Nextre's	
	3. Pasticidas/PCBs	
	4. Diarin	
Analysis:	5/29/90, 5/30/90, 5/31/ <del>90</del>	
	1. Volatifies	
	2. Acids	•
	3. Bankacrols Mus prome	
	4. Austicides/PCBs	
	5. Diarin	
	Section Supervisor Seview & Approxe)	· .
inorganics:	•	
•	1. Retels	•
	2. Cyanidas	
	3. Resols	
ither Analysis:	· Total Petroles Nydrocertors 6/2/90	
	Section Supervisor	
	Review & Approved	·
	Quality Control Supervisor	000

04

### NON-CONFORMANCE SUPPLARY (Case Narretive)

Project Number: 9016835 Log In No.: 4796

Samples were analyzed as per required protocols, no problems were encountered. Sample had to be ran medium level due to high concentration of target compounds.

#### METHODOLOGY SUMMARY

•		
AOUEOUS SAMPLE PREPARATION	REFERENCE 1	REFERENCE 2
BNA, Pesticides/PCB's Extraction AA/ICP Sample Preparation Furnace Sample Preparation Mercury Sample Preparation Hexavalent Chromium Sample Preparation	200.7 200.0 245.1 218.5	3510
NON-AOUEOUS EXTRACTIONS		
SOIL AND SEDIMENT SAMPLES:		
BNA, Pesticides/PCB's Extraction AA/ICP Sample Preparation Furnace Sample Preparation Mercury Sample Preparation	3050 3050 7471	3550
SLUDGE/PETROLEUM BASED SAMPLES:		
AA/ICP Sample Preparation Furnace Sample Preparation Mercury Sample Preparation	. 3	3050 020/3030/3050 7471
ICP (INDUCTIVELY COUPLED PLASMA):		,
Aluminum Antimony Barium Beryllium Cadmium Calcium Chromium Cobalt Copper Iron Lead Magnesium Manganese Molybdenum Nickel Potassium Silver Sodium	200.7 200.7 200.7 200.7 200.7 200.7 200.7 200.7 200.7 200.7 200.7 200.7 200.7 200.7	6010 6010 6010 6010 6010 6010 6010 6010
Tin Titanium	200.7	6010 6010
Vanadium	200.7 200.7	6010 6010
Zinc	200.7	6010

00006

#### METHODOLOGY SUMMARY

FURNACE AA:	REFERENCE 1	REFERENCE 2	REFERENCE 3
Antimony	204.1	7041	•
Arsenic	206.2	7060	
Lead	239.2	7421	
Selenium	270.2	7740	
Thallium	279.2	7841	
Tin	282.2	7011	
Vanadium	286.2	7911 7470	
Mercury	245.1	7470	
AOUEOUS METHODOLOGIES:		•	
Organochlorine Pesticides and PCB's by Gas Chromatography Herbicides by Gas Chromatography Purgeable Organics by GC/MS Base/Neutral, Acids by GC/MS 2,3,7,8-TCDD by GC/MS		•	608 362 624 625 613/625
NON-AOUEOUS METHODOLOGIES:			
Gas Chromatography/Mass Spectrometr	y:		
Purgeable Organics Base/Neutral and Acid Extractables		8240 8270	
Organochlorine Pesticides and PCB's by Gas Chromatography	•	8080	•
MISCELLANEOUS ANALYSIS:			
Extraction Procedure Toxicity		1310	
Ignitability		1010	
Corrosivity		1110	
Reactivity		Chapter 8.3	
Toxicity Characteristic Leaching Pro	cedure	/Dodomonos 5	
(TCLP)		(Reference	? <i>1</i>

#### METHODOLOGY SUMMARY

ADDITIONAL INORGANIC PARAMETERS	REFERENCE 1	REFERENCE 2
Bromi <b>de</b>	320.1	
Color	110.2	
Conductance	120.1	:
Conductance		9050
Odor	140.1	
рH	150.1	
рĤ	·	9040
TDS	160.2	
TSS	160.2	•
TS	160.3	
Hardness	130.1	
Temperature	170.1	
Turbidity	180.1	
Acidity	305.1	•
Alkalinity	310.1	
Ammonia	350.2/ <b>350.3</b>	
Chloride	325.3	•
Chloride .		9252
Residual Chlorine	330.2	
COD	410.3/405.1	
Cyanide	335.3	
Oil and Grease	413.1/413.2	
Oil and Grease	•	9070
Fluoride	340.2	
TKN	351.2	
NO2/NO3	353.2	
D.O.	360.2	
Petroleum Hydrocarbons (Reference 4)	418.1	
Phenol	420.2	
Phosphorous	365.1	•
Silica	370.1	•
Sulfate	375.2/375.4	
Sulfide	376.1	
Surfactants	1 425.1	
TOC	415.1	

#### REFERENCES:

- (1) USEPA-600/4-79-002, Methods for Chemical Analysis of Water and Waste
- (2) USEPA SW 846, Test Methods for Evaluating Solid Waste, Third Edition
- (3) Federal Register 40 CFR Part 136, Vol. 49, No. 209 Test Parameters for the Analysis of Pollutants
- (4) as modified by NJDEP-BISE (for non-aqueous samples)
- (5) Federal Register Vol. 51, No. 216 Friday, 11/7/86, pp. 40643-40652

# DATA REPORTING QUALIFIERS

- U Indicates compound was analyzed for but not detected. Report the minimum detection limit for the sample with the U (e.g. 10U) based on necessary concentration dilution actions. (This is not necessarily the instrument detection limit.) The footnote should read U-Compound was analyzed for but not detected. The number is the minimum attainable detected limit for the sample.
- J Indicates an estimated value. This flag is used either when estimating a concentration for tentatively identified compounds where a 1:1 response is assumed or when the mass spectral data indicates the presence of a compound that meets the identification criteria but the result is less than the specified detection limit but greater than zero (e.g.: If limit of detection is 10 ug/l and a concentration of 3 ug/l is calculated, report as 3J.)
- B This flag is used when the analyte is found in the blank as well as a sample. It indicates possible/probable blank contamination and warns the data user to take appropriate action.
- This flag indentifies all targeted compounds that were found above the method detection limits.
- NA This flag indicates that the data is not applicable

Note: Data on soil samples expressed on a dry weight basis.

# 1 A-T NYTEST BN/IRDOB/TAL INC.

# TOL VOLATILE ORGANICS ANALYSIS DATA SEET

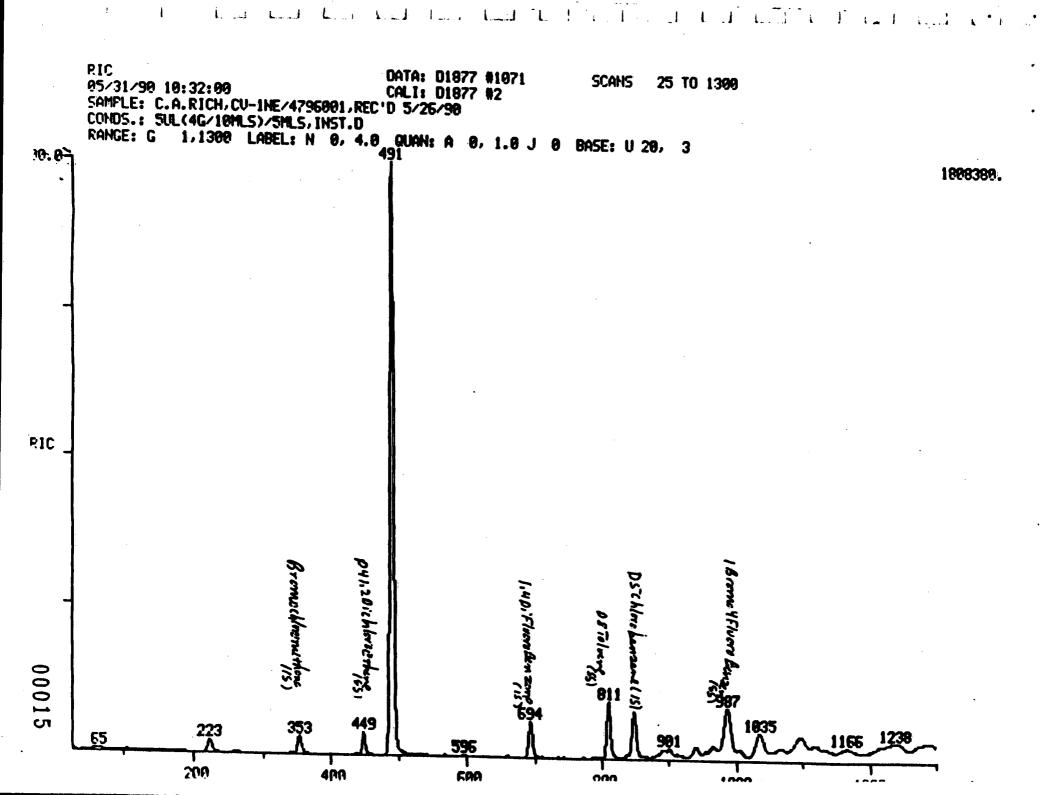
SAPLE NATI		SAPLE ID:	CV-INE
COIC. LEY	EL: NED	LAB ID:	4796001
ANALYSIS D	ITE: 5/31/90	DIL FACTOR:	20.00
		\$ MOISTURE:	11
		UG	/KG
OPO # CAS Number	VOLATILE COPPOINCS	(0	RY BASIS)
1   74-67-3	Chilorosethere	1	28000.0 U.
2   74-83-9	Brancethere	1	28000.0 U.
3   75-01-4	Viny) Chiloride	- 1	28000.0 U.
4   75-00-3	Chiloroethene	ı	28000.0 U.
5   <b>75-09-</b> 2	Methylene Chilaride	1	49000.0 TB
6   67-64-1	2-Propende	-1	21000.0 JB
7   75-15-0	Carbon disulfide	1	14000.0 U.
8   75-35-4	1.1-Dichloroethere	1	14000.0 U.
9   75-34-3	1.1-Oriciniaroschere	ł	14000.0 U.
10   540-59-0	1.2-Dichlorosthere (ti	stal)	14000.0 U.
11   67-66-3	Chiarafara	1	14000.0 U.
12   107-06-2	1.2-Dichlarasthere	Ì	14000.0 U.
13   78-93-3	2-Bucanone	ĺ	28000.0 U.
14   71 <del>-55-6</del>	1.1.1-Trichlorosthere	i	1600000.0 T.
15   56-23-5	Carbon Tetrachloride	i	14000.0 U.
16   100-05-4	Viny? Acetate	i	28000.0 U. I
17   75-27-4	Branchichlarausthere	i	14000.0 U.
18   78-67-5	1,2-Dichlerepresene	i	14000.0 U.
19   10061-01-5	cis-1.3-Dichlerepresen	i	14000.0 U. I
20   79-01-6	Trichlorosthere	i	14000.0 U.
21   124-48-1	Dibraschlargsethene	ľ	14000.6 U.
22   79-00-5	1 1.1.2-Trichleresthere	1	14000.0 U.
23   71-43-2	Benzene	1	14000.0 U. I
24   10061-02-6	Trans-1.3-Dichlarage		14000.0 U.
	Brazofora		14000.0 U. I
26   109-10-1	4-fethyl-2-fenterare	! 1	28000.0 U.
	2-Heartre	!	28000.0 U.
	Intrachloroethere	!	14000.0 U.
• •	Text-achieroechane   1,1,2,2-Texnachieroethe	!	14000.0 U.
•	• •		•
	Tolume	!	14000.0 U.
•	Chloropenzene	!	14000.0 U.
•	Ethylbenzene	!	14000.0 U.
•	Styrene	ļ	14000.0 U.
34   1330-20-7	Xylene (total)	l l	11000.0 J.
35		1	•
36		1	1
37		1	1
38		i	ı
39		1	1
40		1	1
41		ĺ	1

00013

NYTEST BYTICHERIAL INC.

# TOTATIVELY ICONTIFIED CHEMICS COPCINO

		SMPLE ID	: CY-NE
8 OF TI	C FOUND: 9	UB 10:	4796001
	MATRIX: SOIL	FRACTION:	YOA
CAS Number	Compound Name	RT	Estimated Concentration US/NG (DRY NT)
1	LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LINGOLON LIN	29:46   30:02   31:20   32:12   36:34   41:16   42:34   42:52	29000 J 21000 J 15000 J 57000 J 100000 J 19000 J 19000 J



1 A-T NYTEST BNIRONBITAL INC.

# TOL VOLATILE ORGANICS ANALYSIS DATA SHEET

	SAPPLE MATR CONC. LEW ANALYSIS DAT	EL: MED	SOPLE ID: LAB ID: DIL FACTOR: & NOISTURE:	CV-25E 4796002 20.00 16
OP0 8	CAS Number	VOLATILE COPPONOS	_	G/NG DRY BASIS)
1   2   3   5   5   5   10   11   12   13   14   15   16   17   18   19   12   12   13   14   12   13   14   15   15   15   15   15   15   15	74-87-3 74-83-9 75-01-4 75-00-3 75-09-2 67-64-1 75-15-0 75-35-4 75-34-3 540-59-0 67-66-3 107-06-2 78-93-3 71-55-6 56-23-5 108-05-4 75-27-4 78-67-5 10061-01-5 79-01-6 124-48-1 199-00-5 11-43-2 10061-02-6 15-25-2 1006-10-1 191-78-6 27-18-4 9-34-5 08-88-3 08-90-7 00-41-4	Chlorosethere   Brancethere   Brancethere   Vinyl Chloride   Chlorosethere   Methylene Chloride   2-Processe   Carbon disulfide   1,1-Dichlorosethere   1,2-Dichlorosethere   1,2-Dichlorosethere   1,2-Dichlorosethere   1,2-Dichlorosethere   2-Buzanore   1,1-Trichlorosethere   2-Buzanore   1,1-Trichlorosethere   Carbon Tetrachloride   Vinyl Acetate   Brancethere   Carbon Tetrachlorosethere   1,2-Dichlorosethere   Trichlorosethere   1,1-Trichlorosethere   Trichlorosethere   Trichlorosethere   Trichlorosethere   Trichlorosethere   1,1-2-Trichlorosethere   Tetrachlorosethere   Tetrachlorosethere   Tetrachlorosethere   Tetrachlorosethere   Tetrachlorosethere   Toluene   Chlorosethere   Toluene   Chlorosethere   Toluene   Chlorosethere   Toluene   Chlorosethere   Toluene   Chlorosethere   Toluene   Toluene   Chlorosethere   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene   Toluene	stal)	30000.0 U.   30000.0 U.   30000.0 U.   30000.0 U.   30000.0 U.   53000.0 TB   22000.0 JB   15000.0 U.   15000.0 U.   15000.0 U.   15000.0 U.   300000.0 T.   15000.0 U.   300000.0 U.   15000.0 U.   15000.0 U.   15000.0 U.   15000.0 U.   15000.0 U.   15000.0 U.   15000.0 U.   15000.0 U.   15000.0 U.   15000.0 U.   15000.0 U.   15000.0 U.   15000.0 U.   15000.0 U.   15000.0 U.   15000.0 U.   15000.0 U.   15000.0 U.   15000.0 U.   15000.0 U.   15000.0 U.   15000.0 U.   15000.0 U.   15000.0 U.   15000.0 U.   15000.0 U.   15000.0 U.   15000.0 U.   15000.0 U.
38   39   40   41	·		 	# # !

IC INTEST BAYINDOBITAL INC.

# THIRATIVELY IDENTIFIED OFGINICS COPOIND

					SMPLE	ID:	CV-25E
	\$ GF	TIC FOLNO:	13		LAB	ID:	4796002
	-	MATRIX:	<b>20</b> Ir	<u>.</u>	FINCT	OI:	VOX
	C/S Namber		Compound	Name	RT		Estimated Concentration UG/NG (DRY NT)
	1   2   3   4   5   6   7   8   9   10   11   12   13   14   15   16   17   18   19   20   21   22   23   24   25   26   27   28   29   20   20   20   20   20   20   20   20		IRROCON IRROCON IRROCON IRROCON IRROCON IRROCON IRROCON IRROCON IRROCON IRROCON		29:46   30:00   31:18   33:28   36:28   36:28   37:18   30:52   40:30   40:42   41:16   12:90		44000 J   78000 J   26000 J   74000 J   74000 J   74000 J   74000 J   74000 J   74000 J   74000 J   74000 J   74000 J   74000 J   74000 J   74000 J   750000 J   750000 J   750000 J   750000 J   750000 J   750000 J   750000 J   750000 J   750000 J   7500000 J   750000 J   750000 J   750000 J   750000 J   7500000 J   7500000 J   7500000 J   7500000 J   7500000 J   7500000 J   7500000 J   7500000 J   7500000 J   7500000 J   7500000 J   7500000 J   7500000 J   7500000 J   7500000 J   7500000 J   7500000 J   7500000 J   7500000 J   7500000 J   7500000 J   7500000 J   7500000 J   7500000 J   7500000 J   7500000 J   7500000 J   7500000 J   7500000 J   7500000 J   7500000 J   7500000 J   7500000 J   7500000 J   7500000 J   7500000 J   7500000 J   7500000 J   7500000 J   7500000 J   7500000 J   7500000 J   7500000 J   7500000 J   7500000 J   7500000 J   7500000 J   7500000 J   7500000 J   75000000 J   7500000 J   7500000 J   7500000 J   7500000 J   7500000 J   75000000 J   75000000 J   75000000 J   75000000 J   75000000 J   75000000 J   75000000 J   75000000 J   75000000 J   75000000 J   75000000 J   75000000 J   75000000 J   75000000 J   750000000 J   750000000 J   75000000 J   75000000 J   75000000 J   75000000 J   75000000 J   75000000 J   75000000 J   750000000 J   750000000 J   750000000 J   750000000 J   750000000 J   75000000 J   750000000 J   7500000000 J   7500000000 J   7500000000000000000000000000000000000
	29 30	 	•			 	

### I A-T Nytest **an'ikanda**tal inc.

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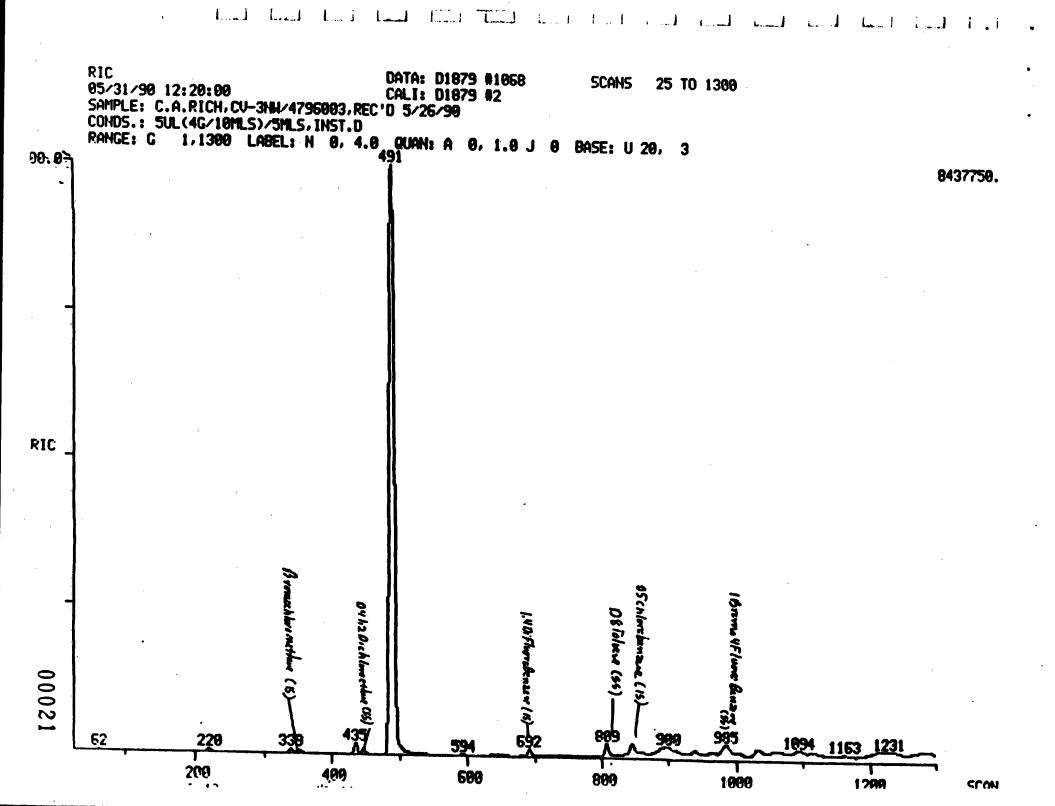
# TOL VOLATILE ORGANICS ANALYSIS DATA SHEET

	SWPLE MATR CONC. LEV ANALYSIS DA	BL: MED	SAFLE 1D LAS 1D DIL FACTOR & MOISTURE	4796003 20.00	
OP0 8	CAS Number	VOLATILE COPPONOS	- · · · · · · · · · · · · · · · · · · ·	UG/NG (DRY BASIS)	
	74-67-3   74-63-9	Chiloromethene   Brommethene	1	30000.0 U. 30000.0 U.	:
	75-01-4	Vinv? Chloride	i	30000.0 U.	i
	75-00-3	Chiloroethene	i	30000.0 U.	İ
	75-09-2	Methylene Chloride	i	55000.0 TB	ĺ
6	67-64-1	2-Propanane		23000.0 JB	İ
7	75-15-0	Carbon disulfide	i	15000.0 U.	ĺ
8	75-35-4	1. 1-Dichlaraethene	Ì	96000.0 T.	ĺ
9	75-34-3	1.1-Dichlaraethere	Í	15000.0 U.	ĺ
10	540-59-0	1.2-Dichlorosthere (tot	a1) j	15000.0 U.	l
11	67-66-3	Chilarafara	i	15000.0 U.	
12	107-06-2	1.2-Dichloroethene	İ	15000.0 U.	
13	78-93-3	2-Butanone	ĺ	30000.0 U.	
14	71-55-6	1,1,1-Trichlorosthene	i	5000000.0 7.	
15	56-23-5	Caroon Tetrechieride	i	15000.0 U.	
16	100-05-4	Vinyl Acetate	i	30000.0 Ú.	
17	75-27-4	Brosotichlarausthene	i	15000.0 U.	
	78-87-5	1,2-Dichlororosese	i	15000.0 U.	
	•	cis-1,3-0ichlorerenne	i	15000.0 U.	
	79-01-6	Irrichilorosthane	i	6308.0 J.	
		Olbranach)aranethene	i	15000.0 U.	
•		1.1.2-Trichloresthere	i	15000.0 U.	
		Benzene	i	15000.0 U.	
•		Trans-1.3-Dichlorogropen	• i	15000.0 U.	
•		Brazoforia	i	15000.0 U.	
		4-Hethyl-2-Pentanene	i	30000.0 U. I	
		2-Heunone	i	30000.0 U.	
٠		Tetrachioroethene	i	15000.0 U. I	
- •		1,1,2,2-Tetrachlorosthare	i	15000.0 U.	
	100-60-3	Toluene	i	5800.0 J.	
31	108-90-7	Chilorobenzene	i	15000.0 U.	
32	100-41-4	Ethylbenzene	i	15000.0 U. I	
33	100-42-5	Styrene	i	15000.0 U.	
	1330-20-7	Xylene (total)	i	21000.0 T.	
35	i		1	1	
36	l i		:	. !	
37 1	]		1	ļ	
38	. 1			1	
39	ļ		] 1	!	
40	. !		!	i	
41 ]	1		1	!	
- 1					

IC NYTEST BAYLACOURTAL INC.

# TEMATIVELY IDENTIFIED ORGANICS COPCINO

		SMPLE I	D: CV- <b>30</b> 4
# OF 1	TIC FOUND: 15	I BLI	D: 4796003
	MATRIX: SOIL	FRICTIO	N: <b>VO</b> A
CAS Number	Caseound Na	■ RT	Estimated Consumeration UG/NG (DRY NT)
1	LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRICHAN LARRIC	37:00   30:46   40:34   40:50   41:02	36000 J     36000 J     36000 J     38000 J



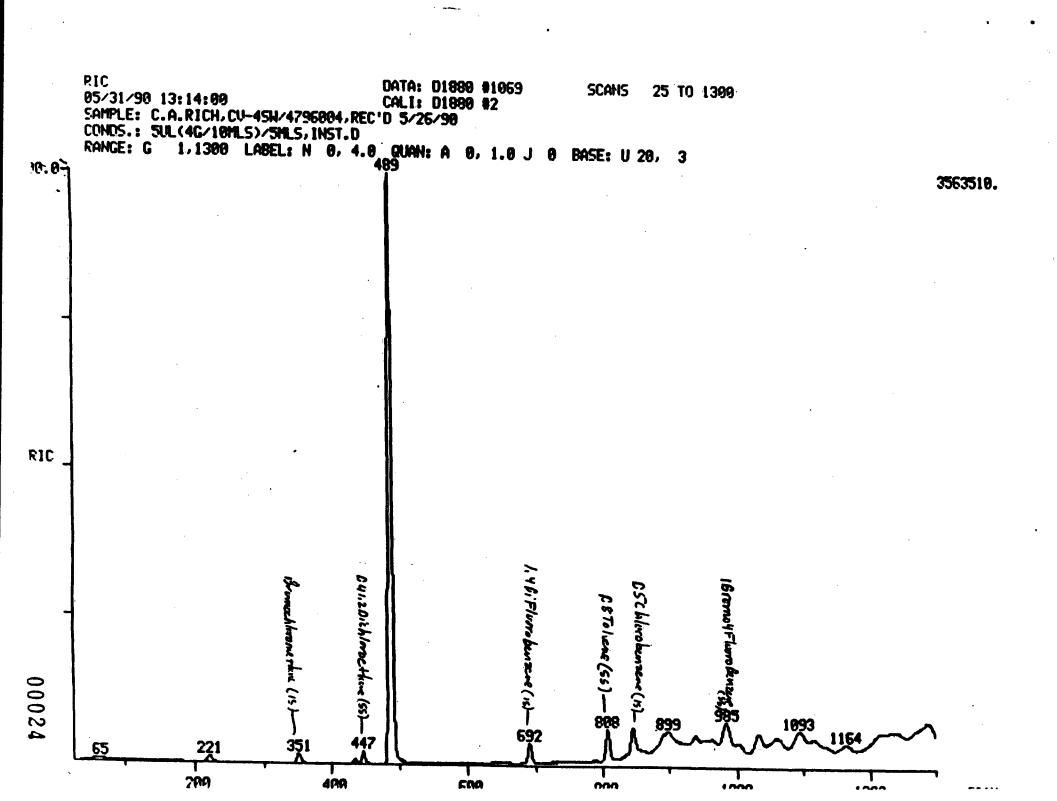
#### 1 A-T NYTEST BNIRDOBITAL DIC.

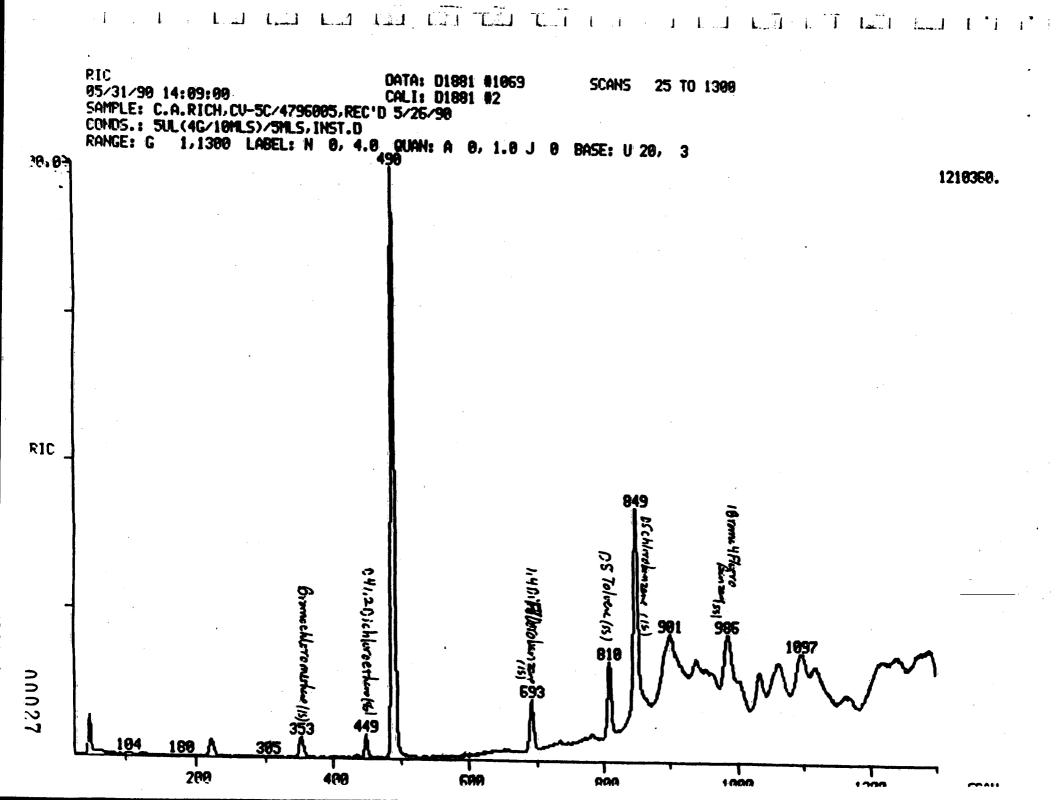
SMPLE MATRIX: SOIL

# TOL VOLATILE CREAVICS ANALYSIS DATA SHEET

SWPLE ID:

		EL MEN	U8 10	: 4796004
	COIC. LEV		_	
	MALYSIS DA	TE: 5/31/90	DIL FACTOR	-
			* NOISTURE	
				UG/NG
OPO #	CAS Number	VOLATILE COPPOINTS		(DRY BASIS)
	<del></del>	<del> </del>		
1	74-87-3	Chlorosetime		29000.0 U.
2	174-83-9	Bronovethere	1	29000.0 U.
3	75-01-4	Viny) Chilaride	ĺ	29000.0 U.
	75-00-3	Chilorosthere		29000.0 U.
	75-09-2	Methylane Chlaride	i	50000.0 TB
	67-64-1	2-Properone	i	29000 D U.
	75-15-0	Carton disulfide	i	14000.0 U.
	75-35-4	1.1-Dichloroethere	i	14000.0 U.
	15-34-3	1,1-0ichlorosthere	- 1	14000.0 U.
	540 <del>-59-</del> 0	1.2-Dichlorosthere (	3\	14000.0 Ú. (
	•	•		
	67-66-3	Chilarafara	!	14000.0 U.
-	107-06-2	1.2-Dichlorosthens	!	14000.0 U.
	78-93-3	2-Bucanone	ļ	29000.0 U. j
	71-55-6	1.1,1-Trichlarasthem	ļ	2000000.0 T.
15	56-23-5	Carton Tetrachilaride	1	14000.0 U.
16	100-05-4	Viny? Acetate	t	29000.0 U.
17	<b>75-27-4</b>	Brosodichlerausthene	1	14000.0 U.
18	70-67-5	1,2-Dichlaragrapuse	İ	14000.0 U.
19	10061-01-5	cis-1,3-Dichlargareas	ne i	14000.0 U.
	79-01-6	Trichlorosthune	i	14000.0 U.
	124-48-1	Dibraschiarasthere	i	14000.0 U. I
	79-00-5	1.1.2-Trichlorosthere	i	14000.0 U. 1
	71-43-2	Benzere	'	14000.0 U.
•	10061-02-6	Trans-1,3-Dichilarage		14000.0 U.
,		•	has i	14000.0 U.
		Brassform	Ļ	
		4-Methyl-2-Pentanone	!	29000.0 U.
•		?-Hexanche	Ţ	29000.0 U.
1		Tetrachloroethere		14000.0 U.
•		1,1,2,2-Tetrachilorosti		14000.0 U.
30	108 <b>-88</b> -3	Tolume	f	14000.0 U.
31	108-90-7	Chilarabenzene	Ì	14000.0 U.
32	100-41-4	Ethylbanzane	1	14000.0 U. j
33 (	100-42-5	Styrene	i	14000.0 U.
•	1330-20-7	Xylene (total)	i	14000.0 U.
35		inter (receil	;	1
•		 	1 1	Ţ B
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#### 1 A-T INTEST BIVINDIPOTAL DIC.

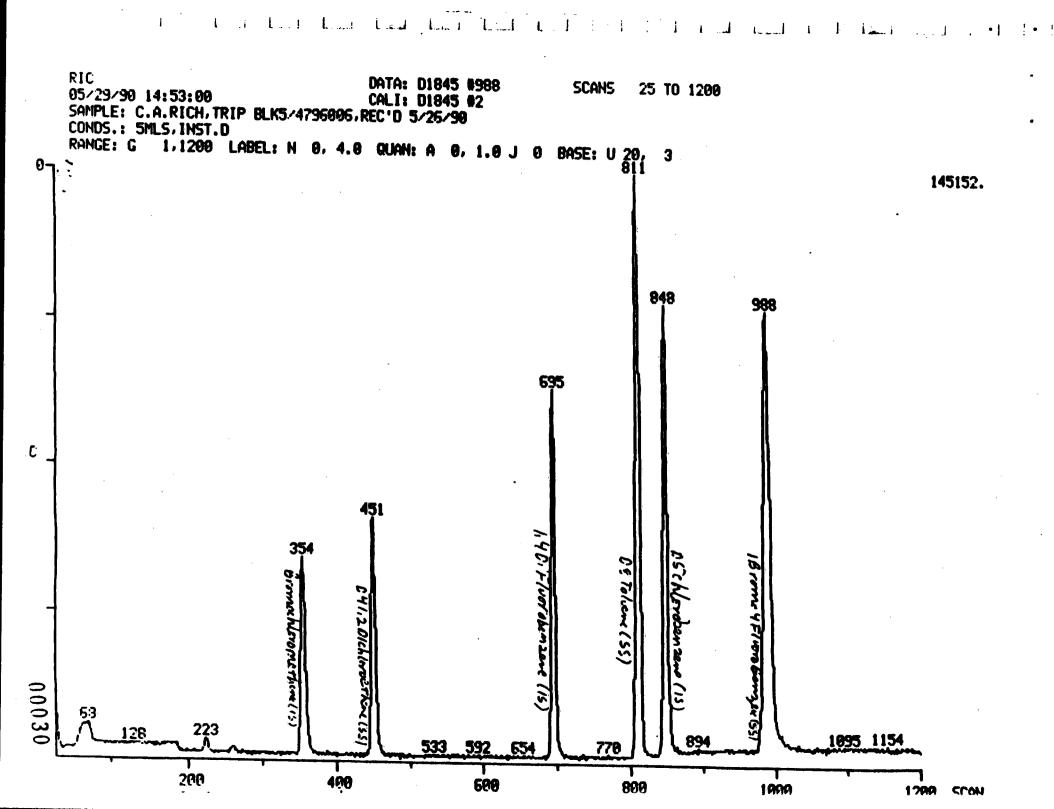
# TOL VOLATILE CREWICS MULTSIS DATA SPEET

·	SMPLE MATR CONC. LEV ANALYSIS DA		SMPLE ID: LAB ID: DIL FACTOR: 4 MOISTURE:NA UG/	TB5 4796006 1.00
OPD #	CAS Number	VOLATILE COPCINOS	Va/I	
1	74-87-3	Chiorosethere		10.0 U. J
2	74-63-9	Bronomethine	1	10.0 U.
3	75-01-4	Viny) Chloride	i	10.0 U.
4	75-00-3	Chlaraethene	l	10.0 U.
5	75-09-2	Methylene Chloride	ł	2.0 JB
6	67-64-1	2-Properone	I	5.0 J.
7	75-15-0	Carbon disulfide	Ĩ	5.0 U.
8	75-35-4	1,1-Dichlorosthere	I.	5.0 U.
9	75-34-3	1,1-Dichloroethene	1	5.0 U.
10	540 <del>-59-</del> 0	1.2-Dichloroethene (t	stal)	5.0 U.
11	67-66-3	Chilarofare	1	5.0 U.
12	107-06-2	1,2-Dichlorosthere	1	5.0 Ú.
13	78-93-3	2-Butanone	1	10.0 U.
14	71 <del>-55-6</del>	1,1,1-Trichloresthere	I	5.0 U.
15	56-23-5	Carton Tetrachloride	ı	5.0 U.
16	109-05-4	Viny   Acetate	ı	18.0 U.
17	75-27-4	Brosociich)oresethere	I	5.0 U.
18	78-67-5	1,2-Dichloropropuse	ļ	5.0 U.
19 (	10061-01-5	cis-1,3-Dichlarapropus	<b>=</b>	5.0 U.
20 [	79-01-6	Trichleresthere	į	5.6 U.
21	124-48-1	Digrasschlarausthere	į	5.0 U.
22	79-00-5	1,1,2-Trichleresthere	ł	5.0 U.
23	71-43-2	Benzene	•	5.0 U.
24	10061-02-6	Trans-1.3-Dichloroprep		5.0 U.
25	75-25-2	Brandform	1	5.0 U.
26	100-10-1	4-Methyl-2-Pentanone	ļ.	10.0 U.
27	591-78-6	2-Herenane	ı	10.0 U.
•	127-10-4	Tetrachloroethere	i	5.0 U.
29	79-34-5	1,1,2,2-Tetrachicrosth		5.0 U.
30	100-00-3	Tolume	ı	5.0 U.
31	108-90-7	Chilarobenzene	1	5.0 U.
32	100-41-4	Ethylbanzane	1	5.0 U.
33	100-42-5	Styrene	1	5.0 U.
34	1330-20-7	Xylene (total)	1	5.0 Ú.
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YC Nytest **a**nironatal bc.

# TENTATIVELY COENTIFIED ORGANICS COPPOND

						SWFLE	ID:	!	185
	a of	TIC FOUND:	Ó			UE	ID:	471	6006
		MATRIX:	WATER			FRICTI	Oi:	VOA	
	CIS Number	_	Compound	Name		RT		Estima Corcant US/L	
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#### 1 A-T Nytest enindebital bic.

SMPLE MATRIX: MATER

# TOL VOLATILE ORGANICS ANALYSIS DATA SHEET

SWPLE ID:

	SHALL MIN		COTILE IV:		
	COIC. LEV	EL: LON	LAB 10:	01841	
	ANALYSIS DA	TE: 5/29/90	DIL FACTOR:	1.00	
	405:010 0		& MOISTURE:NA		
			•		
			ig/l		
OPO I	CAS Number	VOLATILE COPPONOS			
	1 24 63 3	1.01.1		10.0 U.	ı
	74-67-3	Chlorosethere	!		•
2	74-63-9	Brownethere		10.0 U.	•
3	75-01-4	Vinyl Chloride	1	10.0 U.	
1	75-00-3	Chilaraethene	i	10.0 U.	ĺ
	75-09-2	Methylene Chloride	i	5.0 U.	
		•			,
		2-Propenone	!	10.0 U.	
7	75-15-0	Carton disulfide	į	5.0 U.	
8	75-35-4	1.1-Dichlarasthere	1	5.0 U.	
		1,1-Dichlorosthere	i	5.0 U. I	
		•	1\	5.0 U.	
		1,2-Dichlorosthame (t	9(81) <u> </u>	•	
11	67 <del>-66-</del> 3	Chi <del>crofore</del>	į	5.0 U. j	
12 1	107-06-2	1,2-Dichlorosthere	1	5.0 U.	
	ll control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the con	2-Butanche	ì	10.0 U. [	
		1,1,1-Trichleresthere		5.0 U.	
•				•	
•	55-23-5	Carbon Tetrachiloride	Ţ	5.0 U.	
16 j	100-05-4	Viny! Acetate	1	10.0 U.	
17 i	15-27-4	Brazolich lorausthere	i	5.0 U.	
•	10-61-5	1,2-Dichloropropers	i	5.0 U.	
•		• •	[		
19	10061-01-5	cis-1,3-Dichleroproper		5.0 U.	
20	79-01-6	Trichlorostiens	ł	5.0 U.	
21 1	124-48-1	Dibraschlarasthere	i	5.0 U.	
•		1.1.2-Trichlerosthere	i	5.0 U.	
•				•	
	· · · · · · ·	Benzene	!	5.0 U.	
24	10061-02-6	Trans-1.3-Dichilaroprop		5.0 U.	
25	75-25-2	Branofarn	1	5.0 U.	
		4-Methyl-2-Pentanene	ì	10.0 U.	
97 1	591-78-6		;	10.0 U.	
			!	•	
		Tetrachlorosthere	1	5.0 U.	
29	79-34-5	1,1,2,2-Tetrachloroeth	ine	5.0 U.	
30 i	100-00-3	Tolume	1	5.0 U. I	
•	109-90-7	Chlorobenzene	ř	5.0 U.	
•			1	. •	
	100-41-4	Ethy I benzene	ļ	5.0 U.	
33	100-42-5	Styrene	1	5.0 U.	
34	1330-20-7	Xylene (total)	Ì	5.0 U.	
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IC MIEST BAYROUBIAL DC.

# TENTATIVELY LIBITIFIED CIRCUICS COPPOND

					SWPLE	ID:	:	01841
		a OF TIC FOUND:	0		LAB	ID:		ABT103
		MATRIX:	NATER		FRACTI	ON:	VOA	
`								neted
		CAS Number	Compound Ne	<b>•</b>	RT		US/L	ntretion
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1 A-T Nytest **Bmirope**jtal **inc.** 

# TOL VOLATILE ORGANICS ANALYSIS DATA SHEET

	SAPPLE MATE	IIX: SOIL	ETPLE 10:	ARTIAL
	CONC. LEV	EL: NED	UB ID:	D1876
	MALYSIS DA	TE: 5/31/90	DIL FACTOR:	1.00
			& IDISTURE:N	1
			t/G	:/NG
CHPD 8	CAS Number	VOLATILE COMPOUNDS	(0	RY BASIS)
				<del></del>
1	14-67-3	Chiloromethene	- 1	1300.0 Ű.
. 2	74-83-9	Brownethere	1	1300.0 U.
3	75-01-4	Vinyl Chloride	Í	1300.0 U.
,	75-00-3	Chloroethere	ì	1300.0 U.
	75-09-2	Methylene Chloride	i	1500.0 T.
	57-64-1	2-Propendie	Ì	2600.0 T.
	75-15-0	Carbon disulfide	i	630.0 U.
	75-35-4	1.1-Dichloroethene	i	630.0 U.
	75-34-3	1,1-Dichlorostiere	i	630.0 U.
	540 <del>-59-</del> 0	1,2-Dichlarasthere (	total)	630.0 U.
	67 <del>-66-</del> 3	Chlorofora	,	630.0 U. 1
	107-06-2	1 1.2-Dichlarasthere	1	630.0 U.
	7 <del>8-93-</del> 3	2-Outaner	ż	1300.0 Ú.
	71 <del>-55-6</del>	1.1.1-Trichlerestlen	. :	630.0 U.
			•	630.0 U.
•	56-23-5	Certon Tetrechloride	!	
	100-05-4	Vinyl Acetate		1300.0 U.
•	15-27-4	8 and ich loransthere	ţ	600.0 U.
•	78-87-5	1,2-Dichloropropose	. !	630.0 Ü. j
	10061-01-5	cis-1,3-0ichloroprepa		630.0 U.
- •	79-01-6	Trichloroethers	<u> </u>	630.0 U.
•	124-48-1	Dibraschiarasthane	Ţ	630.0 U.
•	79-00-5	1.1,2-Trichloresthans		630.0 U.
	71-43-2	Benzene	į	630.0 U.
24	10061-02-6	Trans-1,3-Dichleropre	pare	630.0 U.
25	75-25-2	Brandfam	I	630.0 U.
26	108-10-1	4-Methyl-2-Pentanone	1	1300.0 U.
27	591-78-6	?-Hevanone		1300.0 U.
28	127-18-4	Tetrachiloroethere	1	630.0 U.
29	79-34-5	1,1,2,2-Tetrechlarast	hane	630.0 U.
30	108-68-3	Tolume	1	630.0 U.
31	108-90-7	Chiloropenzene	İ	630.0 U.
32 i	100-41-4	Ethylbanzone	i	630.0 U.
	100-42-5	Styrene	i	630.0 U.
•	1330-20-7	Xylene (total)	i	630.0 Ü.
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IC Intest Bathorbital Inc.

# TESTATIVELY IDENTIFIED ORGANICS COFFUND

		SUPLE	ID:	<b>VBLI07</b>
8 OF TIC FOLIO	: ° 0	UB	ID:	01876
MATRIX	SOIL	FRACT	iOt:	VOX
CAS Number	Coupound Name	æī		Estimated Consentration US/NS (DRY NT)
1	NO COMPOUNDS FOUND			

2 A NYTEST BN/IRDNENTAL INC. VOLATILE SURFIGATE RECOVERY

MEE 1: LOS IN 8: 4796 1 MATRIX: SOIL JECCCCCCCCCC VOLATILE >>>>>> NOS ! 11.2-DICHORO | TOLUBE j ar j SMPLE 8 | ETHINE-DI 103 OK 01| VOLUT 83 CK 102 CKI 95 OK 105 OK 021 CY-INE 99 OK 03 CY-25E 90 CK 110 CK 101 OK 105 OK 04 CY-364 100 OK 103 OK 05 CV-494 100 OK 108 CK 106 OK 06| CV-5C 96 OK 107 CK 85 OK! 07 08 09 10 11/ 12| 13 14 15 15 17 18 19 20| 21 22 23 24 25 26 27 28| 29 LINITS 1,2-DICHLOROETHWE-DI 53 -131 75 -123 TOLUBIE- DB BFB 69 -127

<sup>\*</sup> SURROGATES CUTSIDE OC LIMITS

2 A Mytest gnurongital inc. Volatile gridgate recovery

PAGE 1: 1 LOG IN 8: 4796 MATRIX: WATER COCCOCCION VOLATILE **>>>>>>** [1,2-0104.0FD | TOLUBE NOS | SWPLE 8 ETHNE-DI OT | 100 OK 105 CK OI VELICES 85 CK 96 OK 102 OK 104 OK 02| TB5 03 04 05 06 07 09 10 11 12 13 14 15 16 17 18| 19 20 21 22| 23| 24 25 26 27| 28 29 30| LIMITS 1,2-DIOLOROETHANE-DI 55 -135 70 -125 TOWER- DB BFB 70 -130

3 A NYTEST BAVIADOBITAL INC.

# VOLATILE MATRIX SPINE MATRIX SPINE CUPLICATE RECOVERY

LOSIN 8: 4796 MATRIX: SOIL PAGE: 1

	1	1				!				(	C LIMITS
FRACTION	COMPOUND	•		ISMPLE RESULT		RECOVERY	I CONC.	INECOVERY	<b>197</b> 0  -	APO	RECOVER
<u> </u>	1 1,1-DIGALOROETHENE		50	0.00	47.03	94.06 OK	47.24	94.47 OK	0.43 OK	16	15 -160
SMPLE 8	TRICHLORDETHENE	i	50	0.00	40.26	80.53 OK	41.36	82.71 OK	2.58 CK	40	50 -115
CV-SC	390296	i						94.71 CK	4.86 CK	18	160 -125
MIEST 8	TOLLINE	i	50	0.00	48.77	97.54 OK	50.19	100.38 CK	2.87 CK	17	13 -175
4796005	OLOROBBIZBIE	i						93.95 OK	2.80 OK	15	45 -135

2 OF 1 ISANSD 0 OF 10
VOX CUT: \_\_\_\_\_

2 OF RPO 0 OF 5
VOX CUT: \_\_\_\_

3 A Nytest Bivisionental Bic.

# VOLATILE MATRIX SPINE/MATRIX SPINE CUPLICATE RECOVERY

LOGIN 8:	4795	MATRIX:	SOIL	PAGE:	1

	I	1 . 1		!			!!		CC LIMITS		
FRACTION	   COPPOIND	ADDED		SWPLE	•	RECOVERY	CONC.	INEXOVERY	<b>87</b> 0	RPO	RECOVER
	1.1-DICHLOROETHENE		50	 	1					16	15 -100
SWPLE 8	TRICHOROETHENE	i	50	İ	İ	1	1	1	ĺ	40	50 -115
TP-3	8909E	i	50	338.00	1316.00	4.00 =	321.00	-34.00	25.64 8	18	100 -125
MIEI 8	TOLLENE	ì						-206.00 *	40.93 =	17	13 -175
4781002	OLOROBBIZBE	İ				E34.00 =				15	45 -135
	878		25	0.00	18.00	70.00	18.00	70	9.00		

S OF & HEAGD VOA OUT:	- 5	of 6
8 OF RPD VOA CUT:	3	OF 3

# COAS TUNING AND MASS CALIBRATION SCOOTLUGGEOGEDE (BFB)

Contractor: NYTEST BIVIRONENTAL INC.

Instrument 10: D

Date: 5/24/90

Lab ID: 01794

Octa Release Authorized By:

Tim: 13:45:00

n/e	ION ABUNDANCE CRITERIA	& RELATIVE ARABANCE
j 50	15.0 - 40.0% of the base pack	19.96
75	) 30.0 - 60.0% of the base pank	45.77
95	Base peak, 100% relative abundance	199.60
j. <b>96</b>	5.0 - 9.0% of the base pank	7.43
173	Less than 2.0% of mass 174	0.00 {0.00} *
1 174	Greater than 50.0% of the base pack	71.36
1 175	   5.0 - 9.0% of mass 174	5.13 (7.19) *
   176	Greater than 95.0%, but less than 101.0% of mass 174	ea.es (97.52) =
   177	5.0 - 9.0% of mass 176	4.65 (6.94) ==

<sup>\*</sup> Value in paranthesis is 4 mass 174,

THIS PERFORMACE TIME APPLIES TO THE FOLLOWING SMPLES. BLANS MO STANDARDS.

SAPLE ID	LIB ID	DATE OF MULYSIS	TIPE OF ANALYSIS
PERFORMACE STANDARD	D1794	5/24/90	13:45
VSTD050	01795	\$/20/90	14:11
VSTD020	01796	5/24/90	15:09
VSTD100	D1797	5/24/90	15:52
VSTD150	01798	5/24/90	16:50
VSTD200	D1799	5/24/90	17:36
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<sup>\*\*</sup> Value in garanthasis is 4 mass 176.

# SCAIG TUNING AND MASS CALIBRATION SKOPOPLIOROBBIZBE (SFB)

Contractor: INTEST BIVIRDNESTAL INC.

Instrument ID: D

Date: 5/31/90

Lab ID: D1874

Data Release Authorized By:

Tim: 8:31:00

a/e	ION ABUNDANCE CRITERIA	& RELATIVE ABUNDANCE
50	15.0 - 40.0% of the base peak	19.55
75	30.0 - 60.0% of the base peak	46.51
95	Base peak, 100% relative abundance	196.00
96	5.0 - 9.0% of the base pank	7.50
   173	Less than 2.0% of mass 174	0.00 [0.00] *
174	Greater than 50.0% of the base pask	65.00
175	5.0 - 9.0% of mass 174	4.72 (7.26) =
1 176	Greater than \$5.0%, but less than 101.0% of sees 174	65.00 (99.99) *
177	5.0 - 9.0% of cases 176	4.08 (6.28) ==

<sup>\*</sup> Value in parenthesis is 4 mass 174.

THIS PERFORMNCE TIME APPLIES TO THE FOLLOWING SUPLES. BLANS AND STANDARDS.

SMPLE ID	MB ID	DATE OF MULYSIS	TIPE OF ANALYSIS
PEFFORMICE STANDARD	51874	5/31/90	8:31
NORKING STANDARD	01875	5/31/90	6:49
VBLJ07	01876	5/31/90	9:37
CV-THE	4796001	j 5/31/90 j	10:32
CV-2SE	4796002	5/31/90	11:26
CV-304	4796003	5/31/90	12:20
CV-49N	4796004	5/31/90	13:14
CY-5C	4796005	5/31/90	14:09
			33700
i		i	
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/ ;		i	

<sup>\*\*</sup> Value in corenthesis is 4 mass 176.

# 3C/AS TUNING AND MASS CALIBRATION BRONDFLUORDBUZBE (8FB)

Contractor:MYTEST BNIRONBITAL DC.

Instrument ID: D

Date: 5/29/90

Lab ID: 01839

Data Release Authorized By:

e de la participa de la compansa de la compansa de la compansa de la compansa de la compansa de la compansa de



Tim: 10:30:00

1	<b>a/</b> 0	ION ABUNDANCE CRITERIA	& RELATIVE ABLADANCE
]	50	15.0 - 40.0% of the base pack	18.93
-	<b>7</b> 5	30.0 - 60.0% of the base peak	43.19
	95	Base peak, 100% relative abundance	160.00
1	96	5.0 - 9.0% of the base pank	7.39
1	173	Less than 2.0% of mass 174	0.60 (0.60) =
1	74	Greater than 50.0% of the base pank	69.16
]   1	75	   5.0 - 9.0% of mass 174	4.91 (7.10) *
1	76	Greater than 95.0%, but less than 101.0% of mass 174	89.43 [100.00] *
1 11	in	5.0 - 9.0A of mass 176	4.57 (6.59) ==

<sup>\*</sup> Value in parameteris is & mass 174.

#### THIS PERFORMACE TIME APPLIES TO THE POLLDING SUPLES, BLANS AND STANDARDS.

SAPLE ID	LAS 1D	DATE OF MULYSIS	THE OF ANALYSIS
PERFORMACE STANDARD   NORKENG STANDARD   VBLUD3 TBS	01839 01840 01841 4796005	\$/29/90 \$/29/90 \$/29/90 \$/29/90	10:38 10:56 11:40 19:53
•			

where in parenthesis is 4 mass 176.

### OC / QA REPORT

Client: C.A. Rich Consultants

Project No.: 9016835

Date Received: 5/26/90

Log In No.: 4796

i	  Sample  Value   ppm		Percent    RPD	Sp1ke  Level   ppm	Sample	Spiked  Sample  Value   ppm	  Percent    Recovery  	Blank   mg/l
Total Petroleum    Hydrocarbons	   3491	4025	14.2	20.5	-	19.9	97.0	<0.2 
	 		 	] 			 	 
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1 A-T NYTEST BIVIRDIDENTAL INC.

# TOL VOLATILE OFFICE AWALYSIS DATA SHEET

SUPLE MATRIX: NATER	SOPLE ID:	FB 5-23
CONC. LEVEL: LON	LAB ID:	4777029
ANALYSIS DATE: 5/28/90	DIL FACTOR:	1.00
	A MOISTURE:MA	

16/L

			OCYL
CMPD 8	CAS Number	VOLATILE COPPOINCS	•
i	74-87-3	Chlorosethene	10.0 U.
2	74-83-9	Bronomethane	10.0 U.
3	75-01-4	Vinyl Chloride	10.0 U.
4	1	Chloroethere	10.0 U.
5	<b>75-09-</b> 2	Methylene Chloride	5.0 U.
6	67 <del>-64</del> -1	2-Properane	10.0 U.
	75-15-0	Carbon disulfide	5.0 U.
_	75-35-4	1,1-Dichlaraethene	5.0 U.
-	75-34-3	1,1-Dichlaraethene	5.0 U.
	540-59-0	1,2-Dichlaraethene (total)	5.0 U.
	67-66-3	Chlorofore	5.0 U.
	107-06-2	1,2-Dichlarasthene	5.0 U.
	78-93-3	2-Butanone	10.0 U.
	71-55-6	1,1,1-Trichlaraethene	5.0 U.
	56-23-5	Carbon Tetrachiloride	5.0 U.
	108-05-4	Vinyl Acetate	10.0 U.
	15-27-4	8 randichlarasethere	5.0 U.
	78-67-5	1,2-Dichloropropune	5.0 U.
	10061-01-5	cis-1,3-Dichlarapropene	j 5.0 U. j
!	79-01-6	Trichlarasthene	5.0 U.
21 (	124-48-1	Olbranch laramethere	5.0 U.
1	79-00-5	1,1,2-Trichlorosthere	5.0 U.
	71-43-2	Benzene	j 5.0 U. j
24	10061-02-6	Trans-1,3-Dichloropropere	5.0 U.
	75-25-2	Brazoform	5.0 U.
•	109-10-1	4-Hethyl-2-Pentanone	j 10.0 U. j
	591-78-6	2-Hewanone	10.0 U.
28		Tetrachloroethene	5.0 U.
,	79-34-5	1,1,2,2-Tetrachlorosthere	j 5.0 U. j
1	100-00-3	l Toluene	[ 5.0 U.
		Chilorobenzene	5.0 U.
32		Ethylbarzene	5.0 U.
	100-42-5	Styrene	5.0 U.
	1330-20-7	Xylene (total)	5.0 U.
35		l	!
36			
37			1
38			ļ
39			T I
40			
41			1 1
i			

IĆ NYTEST BWIRENDITAL INC.

# TENTATIVELY IDENTIFIED ORGANICS CONFOLAD

			SAPLE ID:	FB 5-23
	8 OF TIC FOL	NO: 0	LAB 10:	4777029
	<b>M</b> T)	RIX: WATER	FRICTION:	VOX
	CAS Number	Compound Name	Rī	Estimated Concentration UG/L
	1 2	I NO COMPOUNDS FOUND	!!	
	3			
	5			
	7			ļ
	9			ļ
!	10 11			
!	12 13			Į Į
	14 15	ļ		1
	16 17			!
	18 19	1		
	20 21			Ì
1	23	İ	j	į
į	<b>a</b>	İ	i	j
İ	 ช	į		
İ	21 23	į		
	30 	<u> </u>	_	

Laboratory Resources \*\*

A UNITED WATER HE SCHROLS COMPANY

363 Old Hook Road Westwood, New Jersey 07675-3235 (201) 666-6644 • FAX: (201) 666-7978

CA Rich Consultants, Inc.

404 Clen Cove Avenue

Sea Cliff. New York 11579

Attn: Mr. Eric Weinstock

Date of Report:

05/31/90

Conclute

Work Order #:

90-05-390

Date Received:

05/24/90 000211

Client #:

Land of the second

P.O. #:

PARAMETER

TOTAL % SOLIDS

CV-NBKWL Concre Chipping

76.8

Laboratory Manager

LABORATORY RESOURCES, INC.

363 OLD HOOK ROAD

WFSTW000, NJ 07675

LAB. CERTIFICATION: NJ 02046

NY 18588

DATE COLLECTED:

DATE RECEIVED :

DATE ANALYZED : 05/24/90

DILUTION FACT .: 1.0

CLIENT : CA RICH

LAB SAMPLE : METHOD BLANK

MALYST : JF W J

FILE NAME : >87180

#### GC/MS UDLATILE DRGANIES REPORT

***************************************			**********************		
COMPOUND	UG/L	MDL	COMPOUND	US/L	MDL
***************		******	****************	**********	*****
CHLOROMETHANE	ŅD	10	1,2-DICHLOROPROPANE	ND	5
UINYL CHLORIDE	ND	10	BROHODICHLORDYETHANE	ND	5
BROMONETHANE	ND	10	2-CHLORDETHYLUINYLETHER	ND	5
CHLOROETHANE	ND	10	TRANS-1,3-DICHLOROPROPENE	ND	5
ACROLEIN	ND	10	CIS-1,3-DICHLOROPROPENE	ND	5
TRICHLOROFLUOROMETHANE	ND	5	1,1,2-TRICHLOROETHINE	ND	5
1,1-DICHLOROETHENE	ND	5	DIBROHOCHLORONETHANE	MD	5
CARBON DISULFIDE	ND	5	BROMOFORM	ND	5
ACETONE	ND	10	4-METHYL-2-PENTANDNE	ND	10
ACPYLONITRILE	ND	10	TOLLIENE	ŇD	5
METHYLENE CHLORIDE	ND	5	TETRACHLOROETHENE	ND	5
TRANS-1,2-DICHLOROETHENE	ND	5	2-HEXANDNE	ND	18
1,1-DICHLOROETHANE	ND	5	CHLOROBENZENE	ND	5
CHLOROFORM	ND	5	ETHYLBENZENE	ND	5
1,2-DICHLOROETHANE	ND	5	h,p-xylene	ND	5
UINYL ACETATE	ND	10	D-XYLENE	ND	5
2-BUTANONE	ND	10	STYRENE	ND	5
1,1,1-TRICHLOROETHANE	ND	5	1,1,2,2-TETRACHLORDETHINE	ND	5
CARBON TETRACHLORIDE	ND	5	1,3-DICHLOROBENZENE	ND	5
BENZENE	ND	5	1,4-DICHLOROBENZENE	ND	5
TRICHLOROETHENE	ND	5	1,2-DICHLOROBENZENE	ND	5

SURROGATE COMPOUNDS	RECOVERY	LINITS	STATUS
1,2-DICHLOROETHANE-D4	101 %	76 - 114	OK
TOLUENE-DB	108 %	88 - 118	OK
4-BRONOFLUOROBENZENE	99 %	86 - 115	DK

J. Indicates detected below HOL

ND Indicates compound not detected

<sup>8</sup> Indicates compound also present in blank

## Laboratory Resources...

363 Old Hook Road Westwood, New Jersey 07675 201/666-6644

CHAIN OF CUSTODY RECORD  A. GENERAL INFORMATION  CUSTOMER ("H R'CH COLLECTION SITE RODGEL STATE LA COLLECTION DATE 3771/50
CUSTOMER (14 A'CH COLLECTION SITE BODGLES STATE AS COLLECTION DATE 377/50
ADDRESS 4:4 COLLA CELL MIC COLLECTION DATE 5/74/90.
CITY/STATE/ZIP (AAC) (1 A. 1157); COLLECTED BY PHONE STATE AND REPORT NEEDED BY CONTACT PERSON (AUC. 14/14/15/14); CUSTOMER P.O.
METHOD OF SHIPMENT (CIRCLE ONE) CARRIER LAT HAND DELIVERED
B. COMMENTS AND SPECIAL REQUESTS
DELIVERABLES (CIRCLE ONE) STANDARD TIER II / CLP (REPORT FORMAT)
REPORT RESULTS AS DRY WEIGHT / WET WEIGHT
C. ANALYTICAL REQUESTS
LRI ID NO. FOR LRI USE SAMPLE ID M C P TIME ANALYSES REQUIRED
902534-0 CV-NOKWL V 175 624 RUSH
NOTE
MATRIX (M) DW-DRINKING WATER WW-WASTE WATER SL-SLUDGE SO-SOIL MW-MONITORING WELL O-OTHER
CONTAINER (C) P - PLASTIC G - GLASS PRESERVATIVE (P) a) NaOH b) H <sub>2</sub> SO <sub>4</sub> c) HNO <sub>3</sub> d) HCL e) ASCORBIC ACID
RELINQUISHED BY  DATE / TIME  RECEIVED BY
RELINQUISHED BY DATE / TIME RECEIVED BY

LABORATORY RESOURCES, INC. 343 OLD MOTIK ROAD MESTMOOD, N.1 07675

LAB. CERTIFICATION: NJ 82846

NY 10588

DATE COLLECTED: 05/24/90

DATE RECEIVED : 05/24/90 DATE ANALYZED : 05/25/90

DILUTION FACT.: 1000.0

CLIENT : CA RICH

LAB SAMPLE : 9885390-81 ANALYST : JF WJ

FILE NATE : >B7192

#### GC/MS VOLATILE ORGANICS REPORT

*******************	*********	*******	*****************	********	******
COMPOUND	UE/KG	HDL	COMPOUND	US/KG	HDL
****************	*********	******	******************	********	
CHLOROMETHANE	ND	13021	1,2-DICHLOROPROPANE	ND	6518
UINYL CHLORIDE	ND	13021	BROYDDICHLORDIETHINE	ND	6510
BROMOMETHANE	ND	13021	?-CHLOROETHYLVINYLETHER	ND	6510
CHLOROETHANE	ND	13021	TRANS-1,3-DICHLOROPROPENE	ND	6510
ACROLEIN	ND	13021	CIS-1,3-DICHLOROPROPENE	ND	6510
TRICHLOROFLUOROMETHANE	ND	6510	1,1,2-TRICHLOROETHANE	ND	6510
1,1-DICHLORGETHENE	ND	6518	D18ROHOCHLOROMETHANE	NO	6510
CARBON DISULFIDE	ND	6510	BROHOFORM	ND	6510
ACETONE	ND	13021	4-METHYL-2-PENTANDNÉ	ND	13021
ACRYLONITRILE	ND	13021	TOLUENE	ND	6518
HETHYLENE CHLORIDE	5026 J	6510	TETRACHLOROETHENE	ΝĎ	6518
TRANS-1,2-DICHLORDETHENE	ND	6510	2-HEXANDNE	ND	13021
1,1-DICHLOROETHANE	ND	6510	CHLOROBENZENE	ND	6510
CHLOROFORM	ND	6510	ETHYLBENZENE	MD	6510
1,2-DICHLOROETHANE	ND	6510	H,P-XYLENE	ND	6510
UINYL ACETATE	ND	13021	0-XYLENE	ND	6510
2-BUTANONE	ND	13021	STYRENE	ND	6510
1,1,1-TRICHLOROETHINE	101185	6510	1,1,2,2-TETRACHLOROETHINE	ND	6518
CARBON TETRACHLORIDE	ND	6510	1,3-DICHLOROBENZENE	ND	6510
BENZENE	ND ·	6510	1,4-DICHLOROSENZENE	NĎ	6518
TRICHLORDETHENE	MD	6510	1,2-DICHLOROBENZENE	ND	6510

SURROGATE COMPOUNDS	RECOVERY	LIMITS	STATUS
1,2-DICHLOROETHINE-D4	<u></u>	<del>70 - 12</del> 1	OK
TOLUENE-DO	107 %	81 - 117	DK .
4-BROMOFLUOROBENZENE	90. %	74 - 121	OK

J Indicates detected below MDL

Percent Solid of 76.8 is used for all Target compounds.

ND Indicates compound not detected

B Indicates compound also present in blank

#### 1 A-T WYTEST BIVIRONENTAL INC.

#### TCL VOLATILE ORGANICS ANALYSIS DATA SHEET

SAPLE MIT	• • •	SWPLE ID:	<b>V</b> -1
CONC. LEV		LAB ID:	4373001
MALTSIS DA		DIL FACTOR:	5.00
		MOISTURE:NA NGJ	I •
OPO 8 CIS Number	VOLATILE COMPOUNCS	00/1	
1   74-87-3	I Chiloromethene	ı	50.0 U. I
	Browsthare	1	50.0 U. ļ
3   75-01-4	! Viny! Chlaride	ļ	10.0 U.
4 1 75-00-3	! Chiloroethere		50.0 U.
5   75 <b>-09-</b> 2	Methylene Chloride	į	25.0 U. Į
6   67-64-1 7   75-15-0	1 2-Procencie	!	50.0 U. I
7   75-15-0 8   75-35-4	Carbon disulfide	!	25.0 U.
9   75-34-3	i 1,1-Dichlorosthane		420.0 T.
•	1.2-Dichlorosthane (tota	,,	43.0 T.
11   67-66-3	Chlorofora	''' !	25.0 U. !
12   107-06-2	1.2-Dichlorosthere	!	25.0 U.
	1 2-Butanone	Ţ	26.0 T.
	1.1.1-Trichlarasthere	!	50.0 U.   12000.0 T.
	Carbon Tetrachiloride	1	25.0 U. 1
•	Vinyl Acetate	;	50.0 U.
	Brazalichiorasthere	į	25.0 U.
	1.2-Dichlorograsse	ļ.	25.0 U.
	cis-1,3-Dichlorograppe		25.0 U.
: _ : _ : _ :	Trichlorosthere	ì	25.0 U.
	Dibratachlorasethere	i	25.0 U.
	1.1.2-Trichlorouthern	•	25.0 Ú.
23   71-43-2		i	25.0 U.
	Trans-1,3-Dichlorogroups		25.0 U. I
25   75-25-2		i	25.0 Ü.
26   108-10-1	4-Methy?-2-Pencanana	i	50.0 U.
	2-Histanche	1	50.0 U. I
28 ! 127-18-4	Tetrach loroethere	1	25.0 U. I
29   79-34-5	1,1,2.2-Tetrachloroethene	i	25.0 U. I
30   10 <del>8-68-</del> 3	Toluene	ı	25.0 U. I
	Chioropazene	i '	25.0 U. I
32   100-41-4	Ethylberzene	i	25.0 U. İ
	Styrene	1	25.0 U. 1
	Xviene (total)	1	25.0 U.
35		1	1
36 1		1	i
37 !		i	ŧ
38 1		1	1
33 , i		1	•
40 1		!	1

#### 1 0-? Mytest Ontrovental Inc.

#### TOL PESTICIDE/POB ORGANICS ANALYSIS DATA SHEET

SWPLE ID:

4-1

	CONC. L	EVEL: LON	LAB SAPLE ID:	4373001	
	EXTRACTION	DATE: 4/16/90	OIL FACTOR:	19.00	
	ANALYSIS (	DATE: 4/20/90	& MOISTURE:NA		
			UG/L		
OP) #	CAS Number	PESTICIDE/PC8 COPPC	IAO		
1 /	31 <del>9-8</del> 4-6	I Alaha-CHC	1	0.500 U. I	
2 !	31 <del>9-85-</del> 7	l Beta-OIC	1	0.500 U.	į
3	319-86-8	De l'op-BIC	1	0.500 U.	
4 !	5 <del>0-89-9</del>	: Game-SIC(Lindere)	1	0.500 U.	
5 1	76-44-8	l Heotachior	1	0.500 U.	
6 1	309-00-2	! Aldrin	1.	0.500 U. I	
7.1	1024-57-3	l Heotachilor Ecocide	1	0. <b>500</b> U. 1	
8 !	95 <del>9-98-</del> 8	l Endosulfan I	ĺ	0.500 U. I	
9 1	60-57-1	l Dieldrin	1	1.000 U. I	
10 1	72-55-9	1 4.4"-DOE	į	1.000 U.	
11 /	70-20 <del>-</del> 8	l Endrin	į.	1.000 U.	
12	332!3 <del>-65-9</del>	Endosulfan II	1	1.000 U. !	
13	72-54-8	1 4,4-000	!	1.000 U. I	
14 [	1031-07-8	Endowlfan Sulfate	ļ	1.000 U.	
15	50-2 <del>9-</del> 3	1 4,4'-00T	i	1.000 U.	
16 [	53494-70-5	l Endrin Nature	i	1.000 U.	
17	72-43-5	Methogohilar	1	5.000 U.	
18 1	57-74-9	! Chilardene	t	5.000 U. 1	
19	8001-35-2	Torachane	1	10.000 U. j	
20	12674-11-2	Araclar-1016	ĺ	5.000 U.	
21 1	11104-28-2	Arcclor-1221	ĺ	5.000 Ü. İ	
22	11141-16-5	! Arcclor-1232	1	5.800 U. I	
23	534 <del>59-</del> 21 <del>-9</del>	Arcelor-1202	į ·	5.000 U. I	
24	12672-29-6	Arcolor-1248	i	5.000 U. I	
25 !	11097-69-1	Araciar-1254	į	10.000 U. J	
26 1	11096-62-5	Arcclor-1260	İ	10.000 U. I	

SMPLE MATRIX: WATER

## nytest environmental...

Project No: 9916835

#### Sample Identification and Results

Lab Sample ID No.: 4373001 Results	Alloable Levels	fand
	2 - 12.5	6.0
Ignitability, FM	140	>212
Corresivity, inches/year	0.250	<b>40.0</b> 1
Reactivity to Cyanide, PPH	•	9
Reactivity to Sulfide, PPR	•	<1
Total Solids. PFM	•	620
Petroleum Hydrocarbons, PPH	•	5.7
Total Cyanide, FFM	•	49.02
Phenol, PPH	•	40.002
Sulfide. PPM	-	0.65
E P Tacicity (PPN)		
	5.0	< .5
E P Taxicity (PPM)  Arsenic	5.8 1 <b>0</b> 0.0	<10.0
Arsenic Bertus		<10.0 < .1
Arsenic Berium Cadrium	100.0	<10.0 < .1 < .5
Arsenic Bertus Cadrius Chronius	100.0 1.0	<10.0 < .1 < .5 < .5
Arsenic Bartus Cadirius Chronius Lead	100.0 1.0 5.0	< .5 < .5 < .5 < .5
Arsenic Bartus Cadrius Chronius Land Haroury	100.0 1.0 5.0 5.0	<10.0 < .1 < .5 < .8 < .02 < .1
Arsenic Bertue Cadrium Chronium Leed Heroury Selenium	100.0 1.0 5.0 5.0 0.2	<10.0 < .1 < .5 < .5 < .02 < .1 < .5
Arsenic Bertun Cadrium Chromium Leed Heroury Selentium Si Iver	100.0 1.0 5.0 5.0 0.2 1.0	<19.0 < .1 < .5 < .5 < .02 < .1 < .5 < .00
Arsenic Bertum Cadvium Chrowium Land Heroury Selenium Silver Cyenide	100.0 1.0 5.0 5.0 0.2 1.0 \$.0	<19.0 < .1 < .5 < .02 < .1 < .5 < .07
Arsenic Bertum Cadrium Chronium Leed Heroury Selentum Silver Cyenide Fluoride	100.0 1.0 5.0 5.0 0.2 1.0 5.0	<10.0 < .1 < .5 < .5 < .02 < .1 < .5 < .01 .27 < .5
Arsenic Berius Cadrius Chrostus Leed Heroury Selenius Silver Cyenide	100.0 1.0 5.0 5.0 0.2 1.0 5.0	<10.0 < .1 < .5 < .6 < .02 < .1 < .5 < .00

ND = None Detected < = Less than



## Part 5

AIRBORNE EXPRESS

April 24, 1997

Ms. Mary Anne Rosa
Project Manager
Emergency and Remedial Response Division - Region II
U.S. Environmental Protection Agency
290 Broadway, 19th Floor
New York, New York 10007-1866

Re: Reply to Request for Information on Hazardous Substances at the Kodalux Processing Laboratory, Fair Lawn, New Jersey

Dear Ms. Rosa:

This is in response to your February 26, 1997 letter requesting information regarding the Kodalux Processing Laboratory (facility), located in Fair Lawn, New Jersey. Your request was mailed to the facility at Fair Lawn and thereafter forwarded to Eastman Kodak Company ("Kodak") corporate offices in Rochester, New York for my attention and handling. The status of the facility with respect to Kodak ownership is discussed in the accompanying response. The time to respond to this request was extended to April 26, 1997 by Ms. Amelia Wagner, Esq., of your staff.

As stated in Kodak's January 29, 1991 supplemental response to your office's previous request for information regarding handling of hazardous substances at the facility, four petroleum underground storage tanks and a dry well for the fire suppression system have been removed. These activities have been reported to New Jersey Department of Environmental Protection (NJDEP), case nos. 90 06 15 1528 and 90 05 22 1638.

Upon developing the attached response to your request for information, Kodak has concluded that the following reports inappropriately refer to the usage of trichloroethene (TCE) at the Kodalux Processing Laboratory:



Torger N. Dahl, Attorney, Environmental, Health & Safety Legal Staff
Eastman Kodak Company • 343 State Street • Rochester, New York 14650-0217
Telephone: (716) 724-4899 • Facsimile: (716) 724-5515

## APPENDIX III

### PASSIAC VALLEY SEWERAGE COMMISSION SEWER CONNECTION PERMIT PERMIT NO. 08405930

#### PASSAIC VALLEY SEWERAGE COMMISSIONERS

#### SEWER CONNECTION PERMIT

PERMIT #	08405930
----------	----------

(Please	use the Pe	rmit Numb	er on any	correspon	dence with E	PVSC)	
In compliance							
amendments,	the Clean	Water Act	and the	Rules an	d Regulation	s of the	Passaic
Valley Sewera	ge Commis	sioners:			_		
•					e ·		

	Qualex, Inc.
	Kodalux Processing Services
	(herein, after referred to as the Permittee)
is authorized to	discharge from a facility located at
	16-31 Route #208
•	Fairlawn, New Jersey 07410

to the Passaic Valley Sewerage Commissioners Treatment Works in accordance with discharge limitations, monitoring requirements and other conditions set forth herein.

EFFECTIVE DATE	11/14/93	 
EXPIRATION DATE	11/14/98	

PASSAIC VALLEY SEWERAGE COMMISSIONERS



#### g. EXCESSIVE DISCHARGE RATE

Industrial wastes discharged in a slug of such volume or strength so as to cause a treatment process upset and subsequent loss of treatment efficiency.

#### h. HEAT

- (1) any discharge in excess of  $150^0$  F ( $65^0$ C)
- (2) Heat in amounts which would inhibit biological activity in the PVSC treatment works resulting in a treatment process upset and subsequent loss of treatment efficiency, but in no case shall heat be introduced into the PVSC treatment works in such quantities that the temperature of the influent waters at the treatment plant exceed 40°C (104°F).

#### i. UNPOLLUTED WATERS

Any unpolluted water including, but not limited to, cooling water or uncontaminated storm water, which will increase the hydraulic load on the treatment system, except as approved by PVSC.

#### j. WATER

Any water added for the purpose of diluting wastes which would otherwise exceed applicable maximum concentration limits.

- 2. No person shall discharge or convey, or permit to be discharged or conveyed, to the treatment works any wastes containing pollutants of such character or quantity that will:
  - a. Not be susceptible to treatment or interfere with the process or efficiency of the treatment system.
  - b. Violate pretreatment standards. As pretreatment standards for toxic or other hazardous pollutants are promulgated by USEPA for a given industrial category, all industrial users within that category must immediately conform to the USEPA timetable as well as any numeric limitations imposed by USEPA. In addition, an industrial user shall comply with any more stringent standards as determined by PVSC or other agency.
  - c. Cause the PVSC treatment plant to violate its NJPDES permit, applicable receiving water standards, permit regulating sludge which is produced during treatment or any other permit issued to PVSC.

## C. BPPLUENT LIMITATIONS, MONITORING AND COMPLIANCE REQUIREMENTS

1. During the period beginning (11/14/93) and lasting through (11/14/98) the permittee is authorized to discharge from outlet(s) number(ed) (08405930-18055-0081). Such discharge shall be monitored by the permittee as specified below. Volume to be determined from Incoming Purchased Water Meter Readings less 5% credit for evaporation. Sample Point is Located in the Sampling Shed Over Manhole Designated #1 on the Front Lawn at the Northern End of the Property and Discharges to Route #208.

EFFLUENT CHARACTERISTIC	DISCHARGE 1.	ENOITATIM	MONITORING REQUIREMENTS											
		DAILY MAX	MBASURBMBNT FREQUENCY	SAMPLE TYPE	REPORTING PERIOD									
BOD (0310)	xxxxxx	xxxxx	Monthly	24 hr. comp.	Monthly									
TSS (0530)	xxxxxx	xxxxx	Monthly	24 hr. comp.	Monthly									
pH (9000)	xxxxxx	5 to 10.5	Continuous	Recorder	*									
Volume	xxxxxx	xxxxx	xxxxx	xxxxxx	Monthly									
* Permittee to store	H Recorder Cha	rts and have ava	lable for review by P	VSC personnel on o	lemand.									

- 2. In addition to the monitoring required in Section C.1 the Permittee is required to meet the following schedule of compliance:
  - A. Analysis of wastewater parameters shall be performed by a laboratory that has been certified by the State of New Jersey.
  - B. Permittee is required to submit as an attachment to the MR-2 Form Monthly, a water balance showing meter readings used to calculate the reported volume discharged.
  - C. When final pretreatment standards are promulgated permittee shall submit Baseline Report to PVSC in accordance with 40 CFR 403.12 and any subsequent revisions. (copy attached).

#### D. MONITORING AND REPORTING

#### 1. USER CHARGE

Monitoring results obtained during the previous month shall be reported on Discharge Monitoring Report Form MR-2. Reports are due at PVSC within twenty-one (21) days after the end date of each preceding month. The first report is due on ( \* ). If and Industrial User fails to submit Form MR-2 on a timely basis, the Executive Director shall estimate the use for the period. The estimates may be made thirty (30) days after the due date of the report.

#### 2. PRETREATMENT

Monitoring results shall be reported on Discharge Monitoring Report Form, MR-1 for monthly reporting. Reports are due at PVSC within twenty-one (21) days after the end date of each preceding month.

#### 3. REPORTS

Properly signed reports required herein shall be submitted to PVSC at the following address:

PASSAIC VALLEY SEWERAGE COMMISSIONERS INDUSTRIAL WASTE CONTROL DEPARTMENT 600 Wilson Avenue Newark, NJ 07105

#### 4. TEST PROCEDURES

Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge. Test procedures for the analysis of pollutants shall conform to regulations contained in the PVSC Rules and Regulations, Federal, State and local laws or regulations.

#### 5. RECORDING OF RESULTS

For each measurement of a sample taken pursuant to the requirements of this permit, the permittee shall maintain a record of the following information:

- a. The date, exact place and time of sampling;
- b. The dates the analyses were performed;
- c. The person (s) who performed the analysis;
- d. The analytical techniques or methods used;
- e. The results of all required analyses.
- \* Permittee has been required to submit Monitoring Reports MR-2 to PVSC since 01/21/89.

The volume of each sample shall be proportional to the discharge flow rate unless specifically modified by PVSC. For a 24 hour continuous discharge, a minimum of 24 individual samples shall be collected at equal intervals and at least once per hour. For continuous discharges of less than 12 hours, individual samples shall be taken at least once every 30 minutes. For discharges which are not continuous, individual samples shall be taken such that they will be representative of plant waste.

- g. "Grab" an individual sample collected in less than 15 minutes.
- h. "Quarterly" every three (3) months.
- i. "N/A" not applicable.

#### E. MANAGEMENT REQUIREMENTS

#### 1. CHANGE IN DISCHARGES

All discharges authorized herein shall be consistent with the terms and conditions of this permit. The discharge of any pollutant identified in this permit more frequently than or at a level in excess of that authorized shall constitute a violation of the permit. Any anticipated facility expansions, production increases, or modification which will result in new, different, or increased discharges of pollutants must be reported by submission of a new PVSC Sewer Connection Application or, if such changes will not violate the effluent limitations specified in this permit, by notices to PVSC of such changes. Following such notices, the permit may be modified to specify and limit any pollutants not previously limited.

#### 2. NONCOMPLIANCE NOTIFICATION

If, for any reason, the permittee does not comply with, or will be unable to comply with any effluent limitation specified in this permit, the permittee shall notify PVSC within 24 hours of the occurrence

#### F. MANAGEMENT RESPONSIBILITIES

#### 1. RIGHT OF ENTRY

The permittee shall allow the authorized representatives of PVSC, upon the presentation of credentials:

- a. To enter upon the permittee's premises where an effluent source is located or in which any records are required to be kept under the terms and conditions of this permit; and
- b. At reasonable times to have access to and copy any records required to be kept under the terms and conditions of this permit; to inspect any monitoring equipment or monitoring methods required in this permit; and to sample any discharge of pollutants.

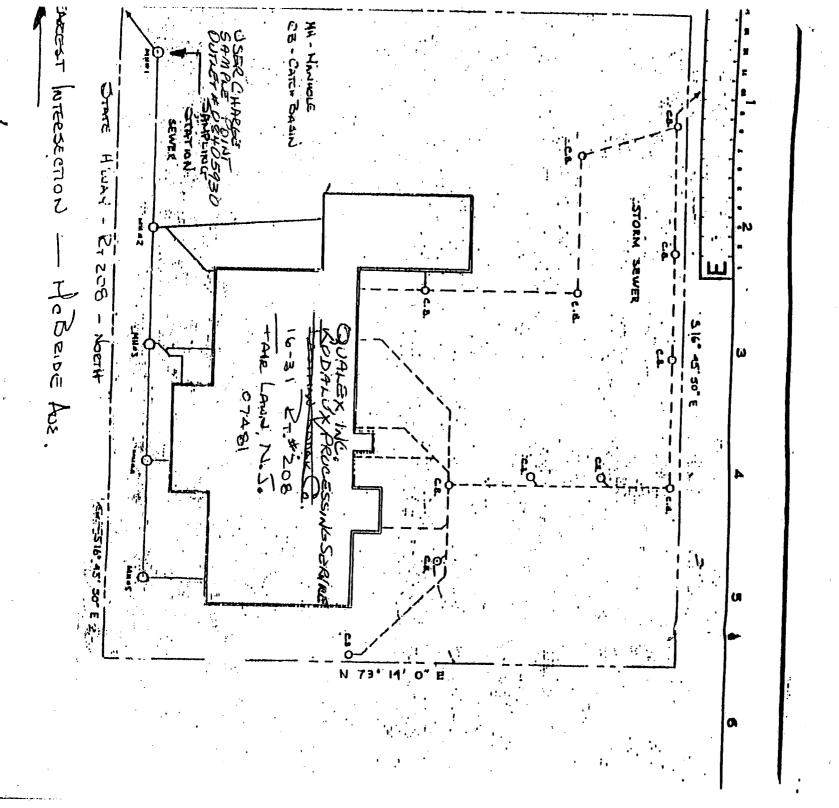
#### 2. TRANSFER OF OWNERSHIP OR CONTROL

In the event of any change in control or ownership of facilities from which the authorized discharges emanate, the permittee shall, in writing, notify the succeeding owner or controller of the existence of this permit, and the need to apply for a new permit, a copy of which shall be forwarded to PVSC.

#### 3. PERMIT MODIFICATION

After notice and opportunity for a hearing, this permit may be modified, or revoked in whole or in part during its terms for cause including, but not limited to, the following:

- a. Violation of any terms or conditions of this permit;
- b. Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts; or
- c. A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge.



### **APPENDIX IV**

# USER CHARGE SELF MONITORING REPORT PVSC PERMITTED OUTLET NO. 08405930-18055-0081

## USER CHARGE SELF MONITORING REPORT

NAME	QUALEX INC.	
ADDRESS	16-31 ROUTE 208, FAIR LAWN, NJ 07410	
FACILITY LOCATION	16-31 ROUTE 208, FAIR LAWN, NJ 07410	
OUTLET DESIGNATION (17 DIGITS)	08405930-18055-0081	

	MON	TORING	S PERI	OD			
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MO.	DAY	YR.	MO.	DAY	YR.		
<u> </u>	START		END				

VOL DISCHARGED THIS PERI	OD
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CU. FT. X 7.48 = GALLONS	
EFFLUENT METER READING	LAST
DAY THIS PERIOD	LAGI

DATE	BOD TSS 0310 0530		TOTAL SILVER	DATE	рН	TSS 0530	TOTAL SILVER
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SIGNATURE OF PRINCIPAL OR AUTHORIZED AGENT	TYPE NAME AND TITLE	TELEPHONE NO.						
Michael Contino	MIKE CARTEN, H.S.E. MGR.	(201) 797-0600 ext. 394						
PVSC FORM MR-2 REV. 2 1/86								

Shipping: 6034 Corporate Dr. • E. Syracuse, NY 13057-1017 • (315) 437-0255 • Fax (315) 437-1209

Mailing: Box 289 • Syracuse, NY 13206

Buffalc (716) 649-2533 Rochester (716) 436-9070

Albany (518) 459-3134 Binghamton (607) 724-0478

March 20, 1997

New Jersey (201) 703-1324

Mr. Mike Carten HSE Mgr. Qualex, Inc. 16-31 Route 208 Fair Lawn, NJ 07410

Re: Analysis Report #06497130 - Silver & pH Analysis

Dear Mr. Carten:

Please find enclosed the results for your samples which were picked up by ULI personnel on March 4, 1997.

We have included the Chain of Custody Record as part of your report. You may need to reference this form for a more detailed explanation of your sample. Samples will be disposed of approximately one month from final report date.

Should you have any questions, please feel free to give us a call.

Thank you for your patronage.

Sincerely,

UPSTATE LABORATORIES, INC.

thony Scale

Anthony J. Scala

Director

AJS/kk

Enclosures: report, invoice

cc/encs: N. Scala, ULI

file

Disclaimer: The test results and procedures utilized, and laboratory interpretations of data obtained by ULI as contained in this report are believed by ULI to be accurate and reliable for sample(s) tested. In accepting this report, the customer agrees that the full extent of any and all liability for actual and consequential damages of ULI for the services performed shall be equal to the fee charged to the customer for the services as liquidated damages.

NY Lab ID 10170 NJ Lab ID 73750 PA Lab ID 68375

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Mailing: Box 289 • Syracuse, NY 13206

Albany (518) 459-3134 Binghamton (607) 724-0478 Buffalo (716) 649-2533 Rochester (716) 436-9070 New Jersey (201) 703-1324

DATE: 3/20/97

Analysis Results

Report Number: 06497130

Client I.D.: QUALEX, INC.-NJ

Sampled by: Client

Lab I.D.: 73750

SILVER & PH ANALYSIS

OUTSIDE SAMPLE PIT 0830H 03/04/97 C

ULI I.D.: 06497130

RESULTS

KEY

FILE#

Total Silver

**PARAMETERS** 

0.49 mg/l

Matrix: Water

MA7822

Approved: Childry J. Scala 1 3/20/99

Note: See disclaimer on cover letter.

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Mailing: Box 289 • Syracuse, NY 13206

Albany (518) 459-3134 Binghamton (607) 724-0478 Buffalc (716) 649-2533 Rochester (716) 436-9070 New Jersey (201) 703-1324

DATE: 3/20/97

Analysis Results

Report Number: 06497130

Client I.D.: QUALEX, INC.-NJ

Sampled by: Client

Lab I.D.: 73750

SILVER & PH ANALYSIS

OUTSIDE SAMPLE PIT 0830H 03/04/97 G

ULI I.D.: 06497131

Matrix: Water

**PARAMETERS** 

RESULTS

**KEY** 

FILE#

pН

7.6SU

17

WB6027

Approved: Ithours. Scala 3/20/9

Note: See disclaimer on cover letter.

#### KEY PAGE

- MATRIX INTERFERENCE PRECLUDES LOWER DETECTION LIMITS
- MATRIX INTERFERENCE
- PRESENT IN BLANK
- ANALYSIS NOT PERFORMED BECAUSE OF INSUFFICIENT SAMPLE
- THE PRESENCE OF OTHER TARGET ANALYTE(S) PRECLUDES LOWER DETECTION LIMITS
- BLANK CORRECTED
- HEAD SPACE PRESENT IN SAMPLE
- QUANTITATION LIMIT IS GREATER THAN THE CALCULATED REGULATORY LEVEL. THE QUANTITATION LIMIT THEREFORE BECOMES THE REGULATORY LEVEL.
- THE OIL WAS TREATED AS A SOLID AND LEACHED WITH EXTRACTION FLUID
- 10 ADL (AVERAGE DETECTION LIMITS)
- 11 PQL (PRACTICAL QUANTITATION LIMITS)
- 12 SAMPLE ANALYZED OVER HOLDING TIME
- 13 DISSOLVED VALUE MAY BE HIGHER THAN TOTAL DUE TO CONTAMINATION FROM THE FILTERING PROCEDURE
- 14 SAMPLED BY ULI
- 15 DISSOLVED VALUE MAY BE HIGHER THAN TOTAL; HOWEVER, THE VALUES ARE WITHIN EXPERIMENTAL ERROR
- 16 AN INHIBITORY FACTOR WAS OBSERVED IN THIS ANALYSIS
- PARAMETER NOT ANALYZED WITHIN 15 MINUTES OF SAMPLING
- 18 DEPENDING UPON THE INTENDED USE OF THIS TEST RESULT, CONFIRMATION BY GC/MS OR DUAL COLUMN CHROMATOGRAPHY MAY BE REQUIRED
- 19 CALCULATION BASED ON DRY WEIGHT
- 20 INDICATES AN ESTIMATED VALUE, DETECTED BUT BELOW THE PRACTICAL QUANTITATION LIMITS
- 21 UG/KG AS REC.D / UG/KG DRY WT
- 22 MG/KG AS REC.D / MG/KG DRY WT
- 23 INSUFFICIENT SAMPLE PRECLUDES LOWER DETECTION LIMITS
- 24 SAMPLE DILUTED/BLANK CORRECTED
- 25 ND (NON-DETECTED)
- 26 MATRIX INTERFERENCE PRECLUDES LOWER DETECTION LIMITS/BLANK CORRECTED
- 27 SPIKE RECOVERY ABNORMALLY HIGH/LOW DUE TO MATRIX INTERFERENCE
- 28 POST-DIGESTION SPIKE FOR FURNACE AA ANALYSIS IS OUTSIDE OF THE CONTROL LIMITS (85-115%); HOWEVER, THE SAMPLE CONCENTRATION IS BELOW THE PQL
- ANALYZED BY METHOD OF STANDARD ADDITIONS
- 30 METHOD PERFORMANCE STUDY HAS NOT BEEN COMPLETED/ND (NON-DETECTED)
- 31 FIELD MEASURED PARAMETER TAKEN BY CLIENT
- 32 TARGET ANALYTE IS BIODEGRADED AND/OR ENVIRONMENTALLY WEATHERED
- 33 NON-POTABLE WATER SOURCE
- 34 THE QUALITY CONTROL RESULTS FOR THIS ANALYSIS INDICATE A POSITIVE BIAS OF 1-5 MG/L. THE POSITIVE BIAS FALLS BELOW THE PUBLISHED EPA REGULATORY DETECTION LIMIT OF 5 MG/L BUT ABOVE 1 MG/L.
- 35 THE HYDROCARBONS DETECTED IN THE SAMPLE DID NOT CROSS-MATCH WITH COMMON PETROLEUM DISTILLATES
- 36 MATRIX INTERFERENCE CAUSING SPIKES TO RESULT IN LESS THAN 50.0% RECOVERY
- 37 MILLIGRAMS PER LITER (MG/L) / POUNDS (LBS) PER DAY
- 38 MILLIGRAMS PER LITER (MG/L) OF RESIDUAL CHLORINE (CL2) / POUNDS (LBS) PER DAY OF CL2
- 39 MICROGRAMS PER LITER (UG/L) / POUNDS (LBS) PER DAY
- 40 MILLIGRAMS PER LITER (MG/L) LINEAR ALKYL SULFONATE (LAS) / POUNDS (LBS) PER DAY LAS
- 41 RESULTS ARE REPORTED ON AN AS REC.D BASIS
- THE SAMPLE WAS ANALYZED ON A TOTAL BASIS; THE TEST RESULT CAN BE COMPARED TO THE TCLP REGULATORY CRITERIA BY DIVIDING THE TEST RESULT BY 20, CREATING A THEORETICAL TCLP VALUE
- 43 METAL BY CONCENTRATION PROCEDURE
- 44 POSSIBLE CONTAMINATION FROM FIELD/LABORATORY

u pstate Laboratories, Inc.

6034 Corporate Drive • E. Syracuse, NY 13057-1017 (315) 437 0255 Fax 437 1209

Chain Of Custody Record

6034 Corporate Drive • E. Sy (315) 437 0255		437 1209	. Lie		ya v	(EEE) E		. <b>y</b> /	e e	<b></b>	D W	€-€	<b></b>					3/17 HOD	
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Albany (518) 459-3134 Binghamton (607) 724-0478

March 17, 1997

New Jersey (201) 703-1324

Mr. Mike Carten HSE Mgr. Qualex, Inc. 16-31 Route 208 Fair Lawn, NJ 07410

Re: Analysis Report #06497129 - Monthly Analysis

Dear Mr. Carten:

Please find enclosed the results for your sample which was picked up by ULI personnel on March 4, 1997.

We have included the Chain of Custody Record as part of your report. You may need to reference this form for a more detailed explanation of your sample. Samples will be disposed of approximately one month from final report date.

Should you have any questions, please feel free to give us a call.

Thank you for your patronage.

Sincerely,

UPSTATE LABORATORIES, INC.

Chilloup J. Scala
Anthony J. Scala

Director

AJS/kk

Enclosures: report, invoice

cc/encs: N. Scala, ULI

file

Disclaimer: The test results and procedures utilized, and laboratory interpretations of data obtained by ULI as contained in this report are believed by ULI to be accurate and reliable for sample(s) tested. In accepting this report, the customer agrees that the full extent of any and all liability for actual and consequential damages of ULI for the services performed shall be equal to the fee charged to the customer for the services as liquidated damages.

NY Lab ID 10170 NJ Lab ID 73750 PA Lab ID 68375

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Mailing: Box 289 • Syracuse, NY 13206

Albany (518) 459-3134 Binghamton (607) 724-0478 Buffalc (716) 649-2533 Rochester (716) 436-9070 New Jersey (201) 703-1324

DATE: 3/17/97

Analysis Results

Report Number: 06497129

Client I.D.: QUALEX, INC.-NJ

Sampled by: Client

Lab I.D.: 73750

MONTHLY ANALYSIS

OUTSIDE SAMPLE PIT 0830H 03/04/97 C

ULI I.D.: 06497129

Matrix: Water

ST

**KEY** 

FILE#

<u>PARAMETERS</u>

BOD5
Total Suspended Solids

43mg/l 16mg/l

RESULTS

WB6472 WB6527

Approved: arthous S. Stala 3/17/9

Note: See disclaimer on cover letter.

6034 Corporate Drive • E. Syracuse, NY 13057-1017 (315) 437 0255 Fax 437 1209 Chain Of Custody Record

(315) 437 0255 Client	гах	437 1209	on # / Orologi	Massa			No.			,	,							3/17 HDD	
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Qualex Inc.	Phone #	Monthly Analysis Site Location (city/state)																Time	
Mike Carten	797-0600	Fair Lawn, NJ																(Lab Notification	
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# APPENDIX V CONSENT ORDER AND FINAL JUDGMENT

NAY. 81 1995.

HARRY A. MARGOLIS P.J. Ch

GABRIEL M. AMBROSIO, ESQ. 464 Valley Brook Avenue P.O. Box 911 Lyndhurst, New Jersey 07071 (201) 933-8844 Attorneys for Plaintiff

SUPERIOR COURT OF NEW JERSEY: CHANCERY DIVISION - ESSEX COUNTY

PASSAIC VALLEY SEWERAGE
COMMISSIONERS, a body politic :
and corporate of the state of
New Jersey, :

DOCKET NO: C-87-95

Civil Action

Plaintiff,

CONSENT ORDER AND FINAL JUDGMENT

QUALEX, INC.,

v.V.

Defendant.

This matter having been opened to the Court by Gabriel M. Ambrosio, Esq. (John T. Ambrosio, Esq., appearing) on behalf of the plaintiff, the PASSAIC VALLEY SEWERAGE COMMISSIONERS ("PVSC"), alleging that the defendant, Qualex, Inc. ("Qualex"), violated the provisions of N.J.S.A. 58:14-1 et seq. by discharging pollutants in excess of the pH discharge limitations of Permit No. 08405930 ("Permit") and the rules and regulations of the PVSC, and the defendant, through its attorneys Riker, Danzig, Scherer, Hyland & Perreti, having consented to the entry of the within Consent Order and Final Judgment, and for good cause thus shown;

IT IS on this 3/ day of May 1995;

ORDERED that:

#### Civil Penalties

1. Within thirty (30) days of the date hereof, the defendant, Qualex, shall pay to the PVSC the sum of two-thousand-six-hundred dollars (\$2,600.00) (the "Settlement Amount") in settlement of all civil penalties that could have potentially been assessed against the defendant for allegedly having violated the provisions of N.J.S.A. 58:14-1 et seq. by discharging pollutants in excess, of the pH discharge limitations of the Permit and the rules and regulations of the PVSC up to the present, including, but not limited to, those alleged violations set forth in the Complaint filed by the plaintiff in this action. All settlement payments shall be made payable to the "Passaic Valley Sewerage Commissioners."

#### Compliance Schedule

- 2. Qualex shall comply with the following schedule for the purpose of controlling and eliminating discharges in excess of the pH discharge limitations of the Permit and the rules and regulations of the PVSC:
  - (a) On or before August 1, 1995, Qualex shall commence installation of a Continuous Dual Stage, stirred Reactor pH Neutralization System (hereinafter the "pH Neutralization System"), having a minimum capacity of 14,000 liters.
  - (b) On or before October 31, 1995, Qualex shall have completed the installation of the pH Neutralization System.

- (c) On or before January 1, 1996, Qualex shall have completed the diversion of all process final overflows away from the new pH Neutralization System.
- (d) On or before February 28, 1996, Qualex shall have completed connecting all existing floor drains in Old Chem Mix Room to the new pH Neutralization System.
- (e) On or before March 1, 1996, Qualex shall be in compliance with the pH discharge limitations of the Permit and the rules and regulations of the PVSC.

#### Progress Reports

3. Qualex shall submit to the PVSC monthly progress reports concerning its compliance with the requirements and obligations of this Order.

#### Final Report

4. Within ninety (90) days of completing the corrective action described in paragraph #2, the defendant shall submit to the PVSC a final report concerning its compliance with all applicable pretreatment standards.

#### Force Majeure

5. The completion date for the corrective action described in paragraph #2 or for the submission of any report required by this Order, shall be extended for the period of time that the defendant or its agent is prevented by a Force Majeure event from proceeding with the corrective action or submitting the required report. As used in this Order, a Force Majeure event shall mean an event which is beyond the reasonable control of the defendant or

any entity controlled by defendant, including, but not limited to, its contractors and subcontractors, including, but not limited to, such events as fire, explosion, inclement weather conditions (that create unforeseen delays), labor disputes, inability to obtain or unavoidable delay in the delivery of materials, inability to obtain or unavoidable delay in securing municipal approvals and/or work permits, inability to obtain or unavoidable delay in securing State approvals and/or Treatment Works Approval and unforeseen subsurface conditions. If the occurrence of a Force Majeure event causes or may cause delay in meeting any completion or submission date set forth above, defendant shall notify the PVSC in writing within ten (10) days of acquiring knowledge of such event, the precise cause of the delay, the measures taken or to be taken by the defendant to prevent or minimize the delay, an estimate of the date by which such measures will be completed or such report will be submitted, and an estimate of the duration of the delay. The defendant shall promptly implement all reasonable measures to prevent or minimize any such delays, prevent or minimize any adverse impact on the PVSC system as a result of such delays, and to comply with all requirements of this Order as soon as possible.

6. If the PVSC finds that: (a) the defendant has complied with the notice requirements of the preceding paragraph and; (b) the delay or anticipated delay has been or will be caused by a Force Majeure event, the PVSC shall extend the time for performance under this Order no longer than the delay resulting from the Force Majeure event. If the PVSC determines that: (a) the defendant did

not comply with the notice requirements of the preceding paragraph or; (b) the event causing the delay does not constitute a Force Majeure event, failure to complete the corrective action under paragraph #2 or to submit any report required hereunder shall be a violation of the requirements of this Order and subject the defendant to sanctions under the applicable statutes and regulations. The burden of establishing that any delay is caused by a Force Majeure event rests with the defendant.

#### General Provisions

- 7. The corrective action undertaken by the defendant pursuant to this Order shall constitute the penalty for any potential additional violations of the pH discharge limitations of the Permit and the rules and regulations of the PVSC during the period covered by the compliance schedule. In the event that the defendant completes all corrective action on or before the completion dates set forth in the compliance schedule, and as modified by any Force Majeure event, any such exceedances experienced during this period shall not be subject to additional penalty.
- 8. The defendant further understands that any exceedance of the pH discharge limitations experienced after the final completion date set forth in the compliance schedule, shall be subject to further enforcement proceedings and civil penalties.
- 9. Nothing in this Order shall preclude the PVSC from taking enforcement action against the defendant for matters not set forth herein or in the Complaint.

- 10. All provisions of the Permit shall remain in full force and effect and are not modified by this Order. The defendant expressly understands that the compliance requirements contained in this Order do not modify any provisions of the Permit or any duties or liabilities of the defendant thereunder.
- 11. This Order shall be binding on the defendant, its assignees and any trustee in bankruptcy or receiver appointed pursuant to a proceeding in law or equity.
- 12. Defendant shall perform all work conducted pursuant to this Order in accordance with prevailing professional standards.
- 13. This Order shall not relieve the defendant from obtaining and complying with all applicable federal, state and local permits, as well as all applicable statutes and regulations while carrying out the obligations imposed by this Order.
- 14. The obligations and civil penalties of this Order are imposed pursuant to the police powers of the State for the enforcement of law and the protection of public health, safety, welfare and are not intended to constitute a debt or debts which may be limited or discharged in a bankruptcy proceeding.
- 15. In addition to the PVSC's statutory and regulatory rights to enter and inspect, the defendant shall allow the PVSC and its authorized representatives access to its facility at all times for the purpose of monitoring defendant's compliance with this Order. While at the defendant's facility, the PVSC and its personnel shall observe all applicable health and safety rules and regulations.

- 16. Upon request, the defendant shall make available to the PVSC all technical records and contractual documents maintained or created by the defendant or its contractors in connection with this Order.
- take additional actions as authorized by law should the PVSC determine that such actions are necessary to protect human health, the environment or the PVSC system. Nothing in this Order shall constitute a waiver of any statutory right of the PVSC to require the defendant to undertake such additional measures should the PVSC determine that such measures are necessary, subject to the defendant's rights under this Order, applicable statutes and regulations.
- 18. The defendant shall not construe any informal advice, guidance, suggestions or comments by the PVSC or by person(s) acting on behalf of the PVSC, as relieving the defendant of its obligation to obtain written approvals as may be required herein, unless such advice, guidance, suggestions or comments by the PVSC shall be submitted in writing to the defendant.
- 19. The defendant shall give written notice of this Order to any successor in interest prior to transfer of ownership of the facility which is the subject of this Order and shall simultaneously verify to the PVSC that such notice has been given.
- 20. No modification or waiver of this Order shall be valid except by written amendment duly executed by the defendant and the PVSC.

- The Court shall retain jurisdiction over the parties to this action solely for the purpose of enforcing the provisions of this Order.
- The PVSC reserves the right to reopen this case in the 22. event the Commissioners of the PVSC, at their next available public meeting, do not accept the recommendations of the chief counsel to enter into this Consent Order and Final Judgment.
- 23. Any claim for damages (as opposed to claims for civil penalties) that the PVSC, or any municipality within its district, may have against the defendant whether known or unknown at time the parties consented to this Order, and whether or not related to any conduct directly or indirectly covered by this Order, has not been joined in this action. However, any such claims may be, and hereby are reserved and may be brought in a subsequent action. Defendant reserves the right to invoke all defenses available under the law (with the exception of the entire controversy doctrine).
- By entering into this consent order, the defendant is not admitting to any liability for any of the excursions alleged in the Hon. Harry A. Margolis, P.J.Ch. complaint.

The undersigned hereby consent to the entry of the foregoing order, both as to substance and form.

GABRIEL M. AMBROSIO, ESQ.

Dated:

John T. Ambrosio, Esq. Attorneys for the PVSC

QUALEX, INC.

Dated:

Authorized Signature

DAVID I CHIRKIN

SR OFFRAMS MANAGER
Print Title & Position

JTA:ja Qualex.com The undersigned hereby consent to the entry of the foregoing order, both as to substance and form.

Dated: 5/26/55	John T. Ambrosio, Esq. Attorneys for the PVSC
Dated:	Authorized Signature
	Print Name
	Print Title & Position

JTA:ja Qualex.com

# APPENDIX VI WELL CONSTRUCTION LOGS

# WELL CONSTRUCTION SUMMARY

CA RICH CONSULTANTS, INC.

- Project:	Kodalux Facility	Client: <u>kodalu</u> x	Well No: MW-1
ND SCALE Protective - Casing	Drill Rig Make/Mod Borehole Diameter: Drilling Fluid:	del: Schramm Rotadr : 10 inches None	
	Supervisory Geolo	-	Depth to Water: 33 feet  Rich Consultants, Inc.)
Grout——Riser  — 20 ft.  — Bedrock	Screen Material:_ Slot Size: Filter Material:_ Seals Material:_ Grout	None/Bedrock Well	Diameter: 4 inch Length: 20 FT.  Diameter: ————————————————————————————————————
Open Hole	TIME LOG	Started	Completed
	Drilling: Installation: Development:	8-2-90 8-2-90 8-2-90	8-2-90 7 8-2-90 8-2-90
	WELL DEVELOPMENT	ir Lift	
45 11.	Static Depth to W	Water: <u>Approx. 33 fe</u>	et Specific Capacity:

### MONITOR WELL CONSTRUCTION SCHEMATIC PROJECT: Kodalux, Fair Lawn, NJ MW-2WELL ID: \_\_\_ DRILLING CO.: Summit Drilling Co., Inc. COORDINATES: LAT. 40°56'35.0": LONG 74°07'44.5" SUPERVISED BY: LMM. Radian Corporation AQUIFER: Uppermost DRILLING METHOD: Air Rotary DEPTH TO WATER FROM MEASURING POINT (MP): 22.7' (4/1/91) DATE COMPLETED: 3/28/91 FLUSH MOUNT MP: Top of casing MANHOLE COVER -ELEVATION OF MP: \_\_\_\_93.50 LOCKING CAP -HEIGHT OF MP RELATIVE TO GROUND LEVEL: -0.57' DEPTH FEET CONCRETE PAD GROUND SURFACE 11: **GROUT** TYPE: Cement-bentonite (8 gal. water to 5 lb. bentonite to 94 lb. Portland cement) AMOUNT: 5 - 94 lb. bags EMPLACEMENT METHOD: Tremie pipe RISER PIPE TYPE: Steel (20' pipe) DIAMETER: \_\_\_\_6-Inch BOREHOLE 10" cased: 6" open rock DIAMETER: \_ 34.43' below MP DEPTH: \_\_ TOTAL LENGTH OPEN ROCK: \_\_14.43'

S S

PARTING WITH \*6 FUEL OIL

SANDSTONE

SHALE

∇ STATIC WATER LEVEL

LEGEND

MONIT	OR WELL CONSTRUCTION SCHEMATIC
PROJECT: Kodalux, Fair Law DRILLING CO.: Summit Drilli SUPERVISED BY: LMM. Radian DRILLING METHOD: Air Rota DATE COMPLETED: 3/27/91	COURDINATES: LAT. 40'36'33.3 CENTER TO COURDINATES: LAT. 40'36'33.3 CENTER TO COURDINATES: LAT. 40'36'33.3 CENTER TO COURDINATES: LAT. 40'36'33.3 CENTER TO COURDINATES: LAT. 40'36'33.3 CENTER TO COURDINATES: LAT. 40'36'33.3 CENTER TO COURDINATES: LAT. 40'36'33.3 CENTER TO COURDINATES: LAT. 40'36'33.3 CENTER TO COURDINATES: LAT. 40'36'33.3 CENTER TO COURDINATES: LAT. 40'36'33.3 CENTER TO COURDINATES: LAT. 40'36'33.3 CENTER TO COURDINATES: LAT. 40'36'33.3 CENTER TO COURDINATES: LAT. 40'36'33.3 CENTER TO COURDINATES: LAT. 40'36'33.3 CENTER TO COURDINATES: LAT. 40'36'33.3 CENTER TO COURDINATES: LAT. 40'36'33.3 CENTER TO COURDINATES: LAT. 40'36'33.3 CENTER TO COURDINATES: LAT. 40'36'33.3 CENTER TO COURDINATES: LAT. 40'36'33.3 CENTER TO COURDINATES: LAT. 40'36'33.3 CENTER TO COURDINATES: LAT. 40'36'33.3 CENTER TO COURDINATES: LAT. 40'36'33.3 CENTER TO COURDINATES: LAT. 40'36'33.3 CENTER TO COURDINATES: LAT. 40'36'33.3 CENTER TO COURDINATES: LAT. 40'36'33.3 CENTER TO COURDINATES: LAT. 40'36'33.3 CENTER TO COURDINATES: LAT. 40'36'33.3 CENTER TO COURDINATES: LAT. 40'36'33.3 CENTER TO COURDINATES: LAT. 40'36'33.3 CENTER TO COURDINATES: LAT. 40'36'33.3 CENTER TO COURDINATES: LAT. 40'36'33.3 CENTER TO COURDINATES: LAT. 40'36'33.3 CENTER TO COURDINATES: LAT. 40'36'33.3 CENTER TO COURDINATES: LAT. 40'36'33.3 CENTER TO COURDINATES: LAT. 40'36'33.3 CENTER TO COURDINATES: LAT. 40'36'33.3 CENTER TO COURDINATES: LAT. 40'36'33.3 CENTER TO COURDINATES: LAT. 40'36'33.3 CENTER TO COURDINATES: LAT. 40'36'33.3 CENTER TO COURDINATES: LAT. 40'36'33.3 CENTER TO COURDINATES: LAT. 40'36'33.3 CENTER TO COURDINATES: LAT. 40'36'33.3 CENTER TO COURDINATES: LAT. 40'36'33.3 CENTER TO COURDINATES: LAT. 40'36'33.3 CENTER TO COURDINATES: LAT. 40'36'33.3 CENTER TO COURDINATES: LAT. 40'36'33.3 CENTER TO COURDINATES: LAT. 40'36'33'3.3 CENTER TO COURDINATES: LAT. 40'36'33'3.3 CENTER TO COURDINATES: LAT. 40'36'33'3.3 CENTER TO COURDINATES: LAT. 40'36'33'3'3'3'3'3'3'3'3'3'3'3'3'3'3'3'3'
FLUSH MOUNT MANHOLE COVER  LOCKING CAP  DEPTH FEET	MP:Top of casing  ELEVATION OF MP:95.26  HEIGHT OF MP RELATIVE TO GROUND LEVEL:0.47'  - CONCRETE PAD  — GROUND SURFACE
	GROUT  TYPE: Cement-bentonite (8 gal. water to 5 lb. bentonite
5 -	to 94 lb. Portland cement)  AMOUNT: 6 - 94 lb. bags  EMPLACEMENT METHOD: Tremie pipe
10 -	RISER PIPE  TYPE:Steel (21.5' PIPE)  DIAMETER:6-inch
	BOREHOLE
20 -	DIAMETER: 10" cased: 6" open rock  DEPTH: 40.60' below MP  TOTAL LENGTH OPEN ROCK: 19.07'
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35 —	LEGEND PARTING WITH *6 FUEL OIL

PARTING WITH \*6 FUEL OI

SANDSTONE

SHALE

STATIC WATER LEVEL

# RADIAM

# MONITOR WELL CONSTRUCTION SCHEMATIC

PROJECT: Kodalux, F	air Lawn, NJ	WELL ID: MW-4	
DRILLING CO.: Summit	Drilling Co., Inc.	COORDINATES: LAT.	40°56'34.5"; LONG 74°07'49.0"
SUPERVISED BY: LMM	Radian Corporation	AQUIFER:Upper	TOST
DRILLING METHOD:	ir Rotary		FROM MEASURING
DATE COMPLETED:	3/28/91	POINT (MP):	(4/1/91)
FLUSH MOUNT		of casing	
MANHOLE COVER -	ELEVATION	OF MP: 93.69	
LOCKING CAP	HEIGHT OF	MP RELATIVE TO	GROUND LEVEL: -0.47'
DEPTH \ \	1123111 31		
FEET \	CONCRETE PAD		
	GROUND SURFACE		
0 - 10-511			,
		GROUT	
	TYPE Cen		water to 5 lb. bentonite
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	94 lb. Portland ceme	nt)
5 - 4.		6 - 94 lb. bags	
	AMOUNT: _	ENT METHOD:Tre	mie pipe
_	EMPLHOEM	EN 1111100	
-   b ·   b ·	• }		_
. – [. • ] ;	<u>^</u>	RISER	PIPE
10 -	TYPE S	teel (20.5' pipe)	
	DIAMETER:	6-inch	
	DIAME I EN		
15 —		BOREH	OLE
	A DIAMETED	10" cased: 6" ope	
	· DEPTH:	36.80' below MP	
	7. TOTAL 1 E	NGTH OPEN ROCK:	16.27'
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<b>1</b> – <b>***</b>			LEGEND
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			SANDSTONE
1 -	• .	(MANAGEMENT)	
40 -			SHALE
_			STATIC WATER LEVEL
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## RADIAN

#### MONITOR WELL CONSTRUCTION SCHEMATIC

PROJECT: Kodalux, Fair Lawn, NJ WELL ID: \_ COORDINATES: \_LAT. 46°53'35.0": LONG 74°07'49.0" DRILLING CO.: Summit Drilling Co., Inc. SUPERVISED BY: LMM. Radian Corporation AQUIFER: \_\_\_Uppermost DEPTH TO WATER FROM MEASURING DRILLING METHOD: Air Rotary POINT (MP): 23.6' (4/1/91) DATE COMPLETED: 3/28/91 MP: Top of casing FLUSH MOUNT MANHOLE COVER ELEVATION OF MP: \_\_94.66 LOCKING CAP -HEIGHT OF MP RELATIVE TO GROUND LEVEL: -0.37' DEPTH FEET CONCRETE PAD - GROUND SURFACE 1 **GROUT** TYPE: Cement-bentonite (8 gal. water to 5 lb. bentonite to 94 lb. Portland cement) AMOUNT: 6 - 94 1b. bags EMPLACEMENT METHOD: \_\_Tremie pipe RISER PIPE TYPE: \_\_\_Steel (20.6' pipe) DIAMETER: 6-inch BOREHOLE DIAMETER: 10" cased: 6" open rock 36.60' below MP DEPTH: \_\_\_ TOTAL LENGTH OPEN ROCK: \_\_\_15.97' LEGEND PARTING WITH \*6 FUEL OIL SANDSTONE SHALE

STATIC WATER LEVEL

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## RADIAN

#### MONITOR WELL CONSTRUCTION SCHEMATIC

WELL ID: \_\_\_MW-6 PROJECT: Kodalux, Fair Lawn, NJ COORDINATES: Lat 40°56'35.7"; Long 74°07'50.6" DRILLING CO.: \_summit Drilling Co.. Inc. SUPERVISED BY: LRM. Radian Corporation AQUIFER: Uppermost DEPTH TO WATER FROM MEASURING DRILLING METHOD: Air Rotary POINT (MP): 31.90' (11/14/91) DATE COMPLETED: 10/22/91 FLUSH MOUNT Top of casing MP: \_ MANHOLE COVER ELEVATION OF MP: 88.15 LOCKING CAP -HEIGHT OF MP RELATIVE TO GROUND LEVEL: -.30' DEPTH FEET CONCRETE PAD - GROUND SURFACE GROUT TYPE: Cement-bentonite (8 gal. water to 5 lb. bentonite to 94 lb. Portland cement) 4.5 - 94 lb. bags AMOUNT: . EMPLACEMENT METHOD: \_\_Tremie pipe RISER PIPE Steel (20.0' pipe) TYPE: 6-inch DIAMETER: . BOREHOLE 10" cased: 6" open rock DIAMETER: 37.20' below MP DEPTH: TOTAL LENGTH OPEN ROCK: \_\_17.20' 20 -30 <del>-</del> LEGEND 35 -SANDSTONE SHALE 40 -D. STATIC WATER LEVEL (11/14/91)

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# MONITOR WELL CONSTRUCTION SCHEMATIC

	MW-7/PR-1
PROJECT: Kodalux, Fair Lawn, NJ DRILLING CO.: Summit Drilling Co., Inc.	WELL ID: MW-7/PB-1 COORDINATES: Lat 40°56'36.1": Long 74°07'45.9"
SUPERVISED BY: LRM. Radian Corporation	AUUIFER: Opper most
DRILLING METHOD: Air Rotary	DEPTH ID WATER FROM MEASURING
DATE COMPLETED: 10/24/91	POINT (MP):33.15' (10-29-91)
MANUAL COVER	o of casing
FI EVATION	N OF MP: 93.31
\ \ HEIGHT OF	MP RELATIVE TO GROUND LEVEL: -0.46
DEPTH COMPETE BAD	
CONCRETE PAD	
GROUND SURFACE	GROUI
TYPE: Ce	ment-bentonite (8 gal. water to 5 lb. bentonite
	94 (b. Portland cement)
- AMOUNT.	9 - 94 lb. bags
- HMOUNTE	MENT METHOD:Tremie pipe
5 - [:, 4] [:*.]	•
	RISER PIPE
TYPE:S	teel (25.0' pipe)
_ L DIAMETER	
10 -	00051101.5
_   _   _	BOREHOLE
- DIAMETER	10" cased: 6" open rock
DEPTH: _	36.25' below MP
TOTAL LE	NGTH OPEN ROCK:
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35 <del>-</del>	
**************************************	LEGEND
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	SANDSTONE
40 —	_
_ \triangle	STATIC WATER LEVEL

## RADIAN

### MONITOR WELL CONSTRUCTION SCHEMATIC

MW-8PROJECT: Kodalux, Fair Lawn, NJ WELL ID: COORDINATES: Lat 40°56'38.3"; Long 74°07'47.6" DRILLING CO.: Summit Drilling Co., Inc. SUPERVISED BY: LRM. Radian Corporation Uppermost AQUIFER: \_\_ DEPTH TO WATER FROM MEASURING DRILLING METHOD: Air Rotary POINT (MP): \_\_\_\_27.32' (10-29-91) DATE COMPLETED: 10/22/91 Top of casing FLUSH MOUNT MP: MANHOLE COVER 88.38 ELEVATION OF MP: \_ LOCKING CAP -HEIGHT OF MP RELATIVE TO GROUND LEVEL: \_-0.34' DEPTH FEET - CONCRETE PAD GROUND SURFACE GROUT Cement-bentonite (8 gal. water to 5 lb. bentonite TYPE: \_ to 94 lb. Portland cement) 9 - 94 lb. bags AMOUNT: . Tremie pipe EMPLACEMENT METHOD: \_ RISER PIPE Steel (25.0' pipe) TYPE: 6-inch DIAMETER: BOREHOLE 10" cased: 6" open rock DIAMETER: . 37.22' below MP DEPTH: TOTAL LENGTH OPEN ROCK: \_\_12.22' 20 -25 — 30 -LEGEND 35 -SANDSTONE SOFT ZONE 三?三 40 -STATIC WATER LEVEL (11/14/91)  $\nabla$ 

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RADIAN MONITO	OR WELL CONSTRUCTION SCHEMATIC
PROJECT: Kodalux, Fair Law DRILLING CO.: Summit Drilling SUPERVISED BY: LRM, Radian DRILLING METHOD: Air Rotal DATE COMPLETED: 10/24/91	<u>ry</u> DEPTH TO WATER FROM MEASURING
FLUSH MOUNT	MP:Top of casing
MANHOLE COVER — LOCKING CAP —	ELEVATION OF MP: 91.24
DEPTH	HEIGHT OF MP RELATIVE TO GROUND LEVEL:0.42'
	CONCRETE PAD
	— GROUND SURFACE GROUT
	TYPE: Cement-bentonite (8 gal. water to 5 lb. bentonite
_   \( \dots \cdot \)	to 94 lb. Portland cement)
	AMOUNT: 7 - 94 lb. bags
5 - 4.	EMPLACEMENT METHOD: Tremie pipe
_	RISER PIPE
- [· · · ]	TYPE: Steel (20.0' pipe)
10 -	DIAMETER: 6-inch
-	BOREHOLE
	DIAMETER: 10" cased: 6" open rock DEPTH: 39.52' below MP
	TOTAL LENGTH OPEN ROCK: 19.52'
13 - 1.	$oldsymbol{\epsilon}$
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_	SANDSTONE
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STATIC WATER LEVEL (11/14/91)

# PRO IECT. Ko

### MONITOR WELL CONSTRUCTION SCHEMATIC

PROJECT: Kodelu	x. Fair Lawn. NJ	WELL ID: MW-10
	mmit Drilling Co Inc.	
	LRM. Radian Corporation	AQUIFER: Uppermost
	Air Rotary	DEPTH TO WATER FROM MEASURING
DATE COMPLETED:	10/24/91	POINT (MP): 25.33' (10-29-91)
FLUSH MOUNT	*	
MANHOLE COVER	MP: To	
LOCKING CAP —		N OF MP: 96.17
DEPTH \ /	HEIGHT OF	F MP RELATIVE TO GROUND LEVEL: -0.39
FEET \	CONCRETE PAD	
	GROUND SURFACE	•
0	<u>/</u>	GROUT
	TYPE: _Ce	ment-bentonite (8 gal. water to 5 lb. bentonite
		94 lb. Portland cement)
_	AMOUNT:	7 - 94 lb. bags
5 —	EMPLACEM	MENT METHOD:Tremie pipe
- [4		RISER PIPE
	TYPE: S	feel (20.0' pipe)
_ [ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	DIAMETER:	
10 —	:	
_	^	BOREHOLE
		10" cased: 6" open rock
_   .	DEPTH:	
15 —	IUIAL LEI	NGTH OPEN ROCK: 16.32'
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_	$\nabla$	STATIC WATER LEVEL (11/14/91)

# APPENDIX VII WELL ABANDONMENT LOGS



January 7, 1993

155 Corporate Woods Suite 100 Rochester, New York 14623 (716) 292-1870 FAX: (716) 292-1878

Mr. Gary Costanzo
Corporate Environment, Groundwater Quality Section
Eastman Kodak Company
1669 Lake Avenue
Building 326, Second Floor - Room 2770
Kodak Park
Rochester, New York 14652-3102

Subject:

Well Abandonment

Kodalux Processing Facility, Fairlawn, New Jersey

Dear Gary:

Enclosed is a copy of the New Jersey Department of Environmental Protection and Energy Well Abandonment Report, the New York State Hazardous Waste Manifest, Eastman Kodak Company forms "Notice of Land Disposal Restriction of Waste" and "Building 218 Scheduling Request," and a HazMat Environmental Group, Incorporated, Shipping Order Form, completed for the Kodalux well abandonment project. Mr. Bruce Hudzik has retained an identical copy of the New York State Hazardous Waste Manifest and Kodak's Notice of Land Disposal Restriction of Waste.

The well abandonment contractor, Summit Drilling, abandoned the well by removing the well pump and drop pipe, and tremie grouting the borehole with a mixture of grout consisting of approximately thirteen 50-pound bags of Portland Type I cement and one 50-pound bag of Benseal Grouting Bentonite. Items removed from the well, including the well cover, surface pipes, and the steam cleaned pump and drop pipe, were staged on site for disposal by Eastman Kodak Company. HazMat Environmental Group, Incorporated, received approximately 100 gallons of fluid collected from the abandonment procedure and equipment decontamination for shipment to Eastman Kodak's facility in Rochester, New York.

Please call if you have any questions.

Dyn M. Edder

Sincerely,

Lynn M. Eshler

Project Director

c: Mr. Dick Spiegel

ROC File

/R-020 5/92

New Jersey Department of Environmental Protection and Energy Water Supply Element — Bureau of Water Allocation

### WELL ABANDONMENT REPORT

MAIL TO:	WELL PERMIT # <u>23-414</u> 7
Bureau of Water Allocation CN 426 Trenton, NJ 08625-0426	of well sealed  DATE WELL SEALED 12-16-92
PROPERTY OWNER <u>Eastman</u>	Lodak Company
ADDRESS 12-31 Route 20	
WELL LOCATION The Same	Fairlawn, Bergen Co.
Street & No., Township, County	1 Block: 4801 Man # 23
	ide & Latitude (N.J. Grid # may be substituted for longitude & latitude)
TYPE OF WELL ABANDONED:	rigation
REASON FOR ABANDONMENT: NO	Longer In Use
WAS A NEW WELL DRILLED? YES X	O PERMIT # OF NEW WELL:
	pealed well nearest roads, buildings, etc.  PONTE 208  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500  1500
To permit adequate grouting, the casing should r must be removed. Pressure grouting is the only	remain in place, but ungrouted liner pipes or any other obstructions accepted method
WAS CASING LEFT IN PLACE? YES DING	
WERE OTHER OBSTRUCTIONS REMOVED? YES	NO WHAT WERE THE OBSTRUCTIONS SUB PUMP &
I certify that this well was sealed in accordance wi	ith N.J.A.C. 7:9-9.1 et seq.
Name of Person Doing Sealing Work (Print or Type)  Agg Ur Address	Signature of Person Doing Sealing Work  12-31-92  Mailing Date  51544  License #
COPIES: White - Water Allocation	'ellow - Owner Pink - Health Dept. Goldenrod - Driller

# W

# Wm. T. Hellings & Son, Inc.

Builder • General Contractor • Commercial • Industrial

— Quality Since 1946

3079 Bristol Road • Warrington, PA 18976 • Office: 215-343-1662 • Fax: 215-343-9626

September 7, 1993

RE: Qualex, Inc. Fair Lawn, NJ

Darrell Bradfield Eastman Kodak Co 901 Elm Grove Road Rochester, NY 14653-5710

Dear Mr. Bradfield:

Enclosed please find the Well Abandonment Report for the Qualex facility at 16-31 Route 208, Fair Lawn, New Jersey.

Very truly yours,

WM. T. HELLINGS & SON, INC.

Robert J. Ciafrei, II

Vice President

RJC\sp

Enclosure

### **WELL ABANDONMENT REPORT**

MAIL TO:	WELL PERMIT # 23 - 108 25 - 8 of well sealed		
Bureau of Water Allocation CN 426 Trenton, NJ 08625-0426	DATE WELL SEALED 8 23 93		
PROPERTY OWNER EASTMAN KODAK CO			
ADDRESS 343 STATE ST. RochesTer	NY.		
TYPE OF WELL ABANDONED: Monitoring	· · · · · · · · · · · · · · · · · · ·		
REASON FOR ABANDONMENT: No longer in use	2		
WAS A NEW WELL DRILLED? YES YOU PER	MIT # OF NEW WELL:		
	Draw a sketch showing distance and relations of well site to nearest roads, buildings, etc.		
To permit adequate grouting, the casing should remain in place, but ungrouted liner pipes or any other obstructions must be removed. Pressure grouting is the only accepted method.			
WAS CASING LEFT IN PLACE? YES NO CASING I	MATERIAL: 6" BLACK STEEL		
WERE OTHER OBSTRUCTIONS REMOVED? ☐ YES ☐ NO WH	HAT WERE THE OBSTRUCTIONS: N. ne		
I certify that this well was sealed in accordance with N.J.A.C. 7:9	-9.1 et seq.		
Ronard J. Barber Jr Name of Person Doing Sealing Work (Print or Type)  Address Signature of Person	Mailing Date    P.U. 127 LUESTUINE N.T 8 24 93   Mailing Date   1135 m   License #		
COPIES: White - Water Allocation Vallow - Owner	Pink - Health Doot Goldonad Driller		

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#### Prate of Rem Bersey

#### DEPARTMENT OF ENVIRONMENTAL PROTECTION

METRO BUREAU OF REGICNAL ENFORCEMENT

2 BABCOCK PLACE WEST ORANGE, NEW JERSEY 07052

Eric J. Evenson Acting Director

February 2, 1990

Mr. Joseph Garger, Borough Manages Borough of Fair Lawn 8-D1 Fair Lawn Avenue Fair Lawn, NJ 07410 BUREAU OF FEDERAL CASE MANAGEMENT

753 5 560

Campliance Evaluation Inspection
Fair Lawn Water Department
P.W. ID No.: 0217001
Fair Lawn/Bergen County

#### Dear Mr. Garger:

A Compliance Evaluation Inspection of your facility was conducted by a representative of this Division on December 12 - 13, 1989. A copy of the completed inspection report form is enclosed for your information.

Your facility received a rating of "UNACCEPTABLE" due to the following deficiencies:

#### Source Deficiencies

- 1) Well No. 28 does not possess a drawdown gauge pursuant to N.J.A.C. 7:10-11.4(q)3.
- 2) The casing vent screens at Wells No. 2, 5, 14, and 15 are in disrepair. Wells No. 10, 25, 26, and 28 do not possess casing vent screens pursuant to N.J. A.C. 7:10-11.4(L)5.
- 3) Wells No. 25 26 and 28 do not possess access for direct measurement pursuant to N.J.A.C. 7:10-11.4(q)3.
- 4) Wells No. 25, 26, and 28 have not been equipped with treated water tabs; samples are collected from nearby fire hydrant.

#### Treatment Deficiencies

- 1) The chlorination room doors at Wells 10. 25, 28, and the Westmorland air stripper have not been equipped with panic type hardware (push bar for opening the door) on the inside of the door pursuant to N.J.A.C. 7:10-11.13(f)1.
- 2) The chlorination booth at Well No. 8 s not equipped with an exhaust fan pursuant to N.J.A.C.7 10-11.13(f)1.

### Storage and/or Distribution Deficiencies

- 1) The water system does not possess an auxiliary power source pursuant to N.J.A.C. 7:10-11.6(g)2
- 2) The overflow outlets at the 11th Street finished water storage tank do not consist of a downpipe which terminates no less that six inches (6"), nor more than thirty-six inches (36") above the ground pursuant to N.J.A.C. 7:10-11.8(f)3.
- 3) The 11th Street storage tank is not fenced and protected against unauthorized access and vandalism pursuant to N.J.A.C. 7:10-11.8(b)1.
- 4. The ladder of the 11th Street water storage tank has not been equipped with a safety cage pursuant to N.J.A.C. 7:10-11.3(j).
- 5. The two water storage tanks at Cadmus Place have not been provided with ladders pursuant to N.J.A.C. 7:10-11.8(f)1. A portable ladder is presently utilized.
- 6. The Gordon Place elevated tank has not been equipped with a low level alarm pursuant to N.J.A.C. 7:10-11.8(a)7.

NOTE: Undersized mains exist within your system. All future replacement of these mains and all new mains must be at least 6 inches in diameter, unless justified by hydrau ic analysis and approved by the Department.

Since the deficiencies cited are presently, or could in the future, adversely affect the quantity and/or quality of water you provide to your customers, you are DIRECTED to institute measures to correct the

deficiencies. A written report concerning specific details of the remedia measures to be instituted, as well as an implementation timetable, must be submitted to this Division within thirty (30) calendar days of the date of this correspondence.

The New Jersey Safe Drinking Water Act (N.J.S.A. 58:12A-1 et seq.) provides for substantial monetary penalties for violations of the Act.

Failure to comply with the above will result in the initiation of enforcement action by this Department. This shall in no way be construed. however, to indicate any exemption on your part from possible benalties for violations indicated by the Compliance Evaluation Inspection, as stated above.

Please direct all correspondence and inquiries to Howard 5. Goldman, of my staff, who can be reached at (201) 669-3900 or by letter through this Division.

Very truly yours,

Gloria T. Grant

Acting Section Chief Ground Water/Safe Drinking Water Enforcement Section Metro Bureau of Regional Enforcement

#### E20:G25

c: Bureau of Safe Drinking Water Robert Williams, USEPA Mr. Frank Fuchs, L.O. Mr. Frank X. Brady, #.O.

#### Enclosure

bc: Zaheer M. Hussain, MIS James Lyko, Criminal Justice

Pam Lange, Bureau of Case Management

20m OV H 14U 0/81

# JERSEY DEPARTMENT OF ENVIRONMENT AL PROTECTION DIVISION OF WATER RESOURCES ENFORCEMENT & REGULATORY SERVICES

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# COMPLIANCE EVALUATION INSPECTION PER IC COMMUNITY WATER SUPPLY

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# NJDEP - DIVISION OF WATER RESOURCE PUBLIC COMMUNITY WATER SUPPLY INSPECTION

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		PARAMET	R(S) FREQUENCY REQUIRED FREQUENCY PERFORMED		
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		Coliform Inorganics	1/3 yrs. 5/31/88		
		Nitrate	9/26/89	-	
		Trihalometha	es 4/ year 7/26/5/		ı
		Organics			
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# NIDEP DIVISION OF WATER RESOURCE PUBLIC COMMUNITY WATER SUPPLY INSPECTION



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# FACT SHEET/ FAIR LAWN WATER DEPARTMENT

	Γ.	CI SHEET/ TAIR EARN WITTER .	
We	<u>ll - Status</u>		Capacity (MGD)
No.	Cadmus Well 2 - operat:	Field onal	0.062
No.	4 - capped	used for observation	
No.	5 - 0.0.3.	due to iron bacteria	
No.	7 - operati	onal	0.237
No.	8 - operati	onal	0.316
No.	9 - operati	onal	0.194
No.	Westmorland	Well Field ional	0.108
No.	11 - operat	ional	0.108
No.	12 - being	rehabilitated	
No.	14 - operat	ional	0.144
No.	Memorial Pa 15 - operat	rk Well Field ional	0.288
No.	16 - operat	ional	0.252
No.	17 - operat	ional	0.216
No.	18 - capped	, used for observation	
No.	19 - operat	ional	0.432
No.	Kodak Memor 23 - capped	ial Park , used for observation	
No.	25 - operat	ional **	0.324
No.	26 - operat	ional **	0.144
No.	27 - capped	, used for observation	
No.	28 - operat	ional	0.317
	NOTE: Wells well	No. 1,3,6,13,20,21,22, and housing and appurtenances i	1 24 have been sealed, emoved.
•	** out of	service due to mechanical p	problems

# APPENDIX VIII RESTATED CERTIFICATE OF INCORPORATION

#### **EASTMAN KODAK COMPANY**

A New Jersey Corporation

# RESTATED CERTIFICATE OF INCORPORATION

May 12, 1988

Rochester, New York

#### RESTATED

#### **CERTIFICATE**

**OF** 

#### **INCORPORATION**

OF

#### **EASTMAN KODAK COMPANY**

Pursuant to Section 14A:9-5 of the New Jersey Business Corporation Act, Eastman Kodak Company amends, restates, and integrates its Certificate of Incorporation, as heretofore amended and restated, to read as follows:

SECTION 1. The name of the corporation is "Eastman Kodak Company."

SECTION 2. The Company is organized for the purpose of engaging in any activity within the purposes for which corporations may be organized under the New Jersey Business Corporation Act, as amended from time to time.

SECTION 3. The Company has authority to issue 1,050,000,000 shares, consisting of 100,000,000 shares of preferred stock, par value \$10.00 each, and 950,000,000 shares of common stock, par value \$2.50 each.

The Board of Directors may cause the preferred stock to be issued from time to time in one or more series and may determine the designation and number of shares, and the relative rights, preferences, and limitations of the shares, of each such series. The Board of Directors may change the designation and number of shares, and the relative rights, preferences, and limitations of the shares, of each series no shares of which have been issued.

Such authority of the Board of Directors includes but is not limited to the authority to cause to be issued one or more series of preferred stock

- (a) entitling the holders thereof to cumulative, noncumulative or partially cumulative dividends;
- (b) entitling the holders thereof to receive dividends payable on a parity with or in preference to the dividends payable on the common stock or on any other series of preferred stock;
- (c) entitling the holders thereof to preferential rights upon the liquidation of, or upon any distribution of the assets of, the Company;
- (d) convertible, at the option of the Company or of the holders or of both, into shares of common stock or any other series of preferred stock;
- (c) redeemable, in whole or in part, at the option of the Company, in cash, its bonds or other property, at such price or prices, within such period or periods, and under such conditions as the Board of Directors provides, including creation of a sinking fund for the redemption thereof;

majority of the votes east by the holders of shares entitled to vote thereon at any annual or special meeting of the shareholders duly called for that purpose.

DATED this 12th day of May, 1988.

**EASTMAN KODAK COMPANY** 

Ву

Cecil D. Quillen, Jr.

Senior Vice President

ATTEST:

A. P. Donovan

Secretary

Filed and Recorded May 12, 1988 Jane Burgio, Secretary of State.

SECTION 6. No director or officer of the Company shall be personally liable to the Company or its shareholders for damages for breach of any duty owed to the Company or its shareholders as a director or officer, except to the extent that such exemption from liability or limitation thereof is not permitted by the New Jersey Business Corporation Act now or hereafter. Neither the amendment nor repeal of this Section 6, nor the adoption of any provision of this Certificate of Incorporation inconsistent with this Section 6, shall eliminate or reduce the effect of this Section in respect of any matter occurring, or any cause of action, suit or claim that, but for this Section 6 would accrue or arise, prior to such amendment, repeal or adoption of an inconsistent provision.

SECTION 7. The sale, assignment, transfer or other disposition of all the rights, franchises and property of the Company as an entirety shall be made only after obtaining approval by the affirmative vote of the holders of two-thirds of the shares issued and outstanding at any annual or special meeting of shareholders duly called for that purpose.

SECTION 8. The Company may loan money to, or guarantee an obligation of, or otherwise assist any officer or other employee of the Company or of any subsidiary, including an officer or employee who is also a director of the Company, whenever, in the judgment of a majority of the entire Board of Directors, such loan, guarantee or assistance may reasonably be expected to benefit the Company.

SECTION 9. Except as otherwise required by law or by other provisions of this Certificate of Incorporation, this Certificate of Incorporation may be amended by the affirmative vote of a

(f) lacking voting rights or having limited voting rights or enjoying special or multiple voting rights.

No holder of shares of the Company shall be entitled, as such, as a matter of pre-emptive or preferential right, to subscribe for or purchase any part of any new or additional issue of shares, or any treasury shares, or of securities of the Company or of any subsidiary of the Company convertible into, or exchangeable for, or carrying rights or options to purchase or subscribe, or both, to shares of any class whatsoever, whether now or hereafter authorized, and whether issued for cash, property, services or otherwise.

SECTION 4. The address of the Company's current registered office in the State of New Jersey is 28 West State Street, Trenton, New Jersey 08608. The name of the Company's current registered agent is The Corporation Trust Company.

SECTION 5. The affairs of the Company shall be managed by a Board of Directors. Except as otherwise provided by this Section 5, the number of directors, not fewer than nine (9) nor more than eighteen (18), shall be fixed from time to time by resolution of the Board of Directors. Commencing with the annual election of directors by the shareholders in 1987, the directors shall be divided into three classes: Class I. Class II and Class III, each such class, as nearly as possible, to have the same number of directors. The directors may be removed by vote of the shareholders only for cause. The term of office of the initial Class I directors shall expire at the annual meeting of the shareholders in 1988, the term of office of the initial Class II directors shall expire at the annual meeting of the shareholders in 1989, and the term of office of the initial Class III directors shall expire at the annual meeting of the shareholders in 1990. At each annual meeting of the shareholders

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held after 1987, the directors chosen to succeed those whose terms have then expired shall be identified as being of the same class as the directors they succeed and shall be elected by the shareholders for a term expiring at the third succeeding annual meeting of the shareholders.

In the event that the holders of any class or series of stock of the Company having a preserence, as to dividends or upon liquidation of the Company, shall be entitled by a separate class vote to elect directors, as may be specified pursuant to Section 3, then the provisions of such class or series of stock with respect to their rights shall apply. The number of directors that may be elected by the holders of any such class or series of stock shall be in addition to the number fixed pursuant to the preceding paragraph of this Section 5 and shall not be limited by the maximum number of directors set forth above. Except as otherwise expressly provided pursuant to Section 3, the number of directors that may be so elected by the holders of any such class or series of stock shall be elected for terms expiring at the next annual meeting of shareholders and without regard to the classification of the remaining members of the Board of Directors, and vacancies among directors so elected by the separate class vote of any such class or series of stock shall be filled by the remaining directors elected by such class or series, or, if there are no such remaining directors. by the holders of such class or series in the same manner in which such class or series initially elected a director.

If at any meeting for the election of directors, more than one class of stock, voting separately as classes, shall be entitled to elect one or more directors and there shall be a quorum of only one such class of stock, that class of stock shall be entitled to elect its quota of directors notwithstanding the absence of a quorum of the other class or classes of stock.

Vacancies and newly created directorships resulting from an increase in the number of directors, subject to the provisions of Section 3, shall be filled by a majority of the directors then in office, although less than a quorum, or by a sole remaining director, and such directors so chosen shall hold office until the next succeeding annual meeting of shareholders.

Notwithstanding any other provisions of this Certificate of Incorporation or the By-laws of the Company (and notwithstanding that a lesser percentage may be specified by law), the provisions of this Section 5 may not be amended or repealed unless such action is approved by the affirmative vote of the holders of not less than eighty percent (80%) of the voting power of all of the outstanding shares of capital stock of the Company entitled to vote generally in the election of the directors, considered for purposes of this Section 5 as a single class.

The number of directors constituting the Company's current Board of Directors is sixteen (16), the address of each director is 343 State Street, Rochester, New York 14650, and their names are as follows:

Roger E. Anderson Richard S. Braddock John F. Burlingame Colby H. Chandler Martha Layne Collins Charles T. Duncan Walter A. Fallon Juanita M. Kreps

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John J. Phelan, Jr. Cecil D. Quillen, Jr Toy F. Reid J. Phillip Samper David S. Saxon Paul L. Smith William L. Sutton Kay R. Whitmore

# **FIGURES**

